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Leu Gly Lys Lys Val Ile Glu Asp Arg Asp His Tyr Ile Pro Asn Thr	
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Arg Asp Glu Lys Val Gly Glu Thr Ile Ile Asp Leu Glu Asn Arg Phe	
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Leu Ser Arg Phe Gly Ser His Cys Gly Ile Pro Glu Glu Tyr Cys Val	
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Ser Gly Val Asn Thr Trp Arg Asp Gln Leu Arg Pro Thr Gln Leu Leu	
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Phe Glu Ala Asn Lys Ile Leu His Gln His Leu Gly Ala Pro Glu Glu	
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Val Glu Thr Arg Thr Leu His Ser Thr Phe Gln Pro Asn Ile Ser Gln	
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Leu Arg Val Ile Ile Trp Asn Thr Lys Asp Val Ile Leu Asp Glu Lys	
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Ser Ile Thr Gly Glu Glu Met Ser Asp Ile Tyr Val Lys Gly Trp Ile	
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Pro Gly Asn Glu Glu Asn Lys Gln Lys Thr Asp Val Arg Tyr Arg Ser	
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ttg gat ggt gaa ggg aat ttt aac tgg cga ttt gtt ttc ccg ttt gac	4191
Leu Asp Gly Glu Gly Asn Phe Asn Trp Arg Phe Val Phe Pro Phe Asp	
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Tyr Leu Pro Ala Glu Gln Leu Cys Ile Val Ala Lys, Lys Glu His Phe	
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Trp Ser Ile Asp Gln Thr Glu Phe Arg Ile Pro Pro Arg Leu Ile Ile	
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Gln Ile Trp Asp Asn Asp Lys Phe Ser Leu Asp Asp Tyr Leu Gly Phe	
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Leu Glu Leu Asp Leu Arg His Thr Ile Ile Pro Ala Lys Ser Pro Glu	
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Pro Ala Gly Lys Gly Arg Asp Glu Pro Asn Met Asn Pro Lys Leu Asp	
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Leu Pro Asn Arg Pro Glu Thr Ser Phe Leu Trp Phe Thr Asn Pro Cys	
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Lys Thr Met Lys Phe Ile Val Trp Arg Arg Phe Lys Trp Val Ile Ile	
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1497

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Gln Gly Lys Leu Thr Leu Leu Cys Asp Ala Lys Thr Asp Gly Ser Phe	
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Met Val Val Leu Val His Asp Ser Gly Asp Ala Glu Asp Glu Glu Asn	
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Asp Ile Leu Leu Asn Gly Leu Ser His Gln Ser His Leu Ile Leu Arg	
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Asp Pro Asn Ser Arg Pro Arg Arg Pro Phe Leu Ser Phe Leu Cys Tyr  
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ccc cgg ttc cgc tgt ctt ttc tgt cta cag ttt gcg atc ccc gcg tcc 192  
Pro Arg Phe Arg Cys Leu Phe Cys Leu Gln Phe Ala Ile Pro Ala Ser  
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Arg Met Glu Gln Leu Asn Glu Leu Glu Leu Leu Met Glu Lys Ser Phe  
61 66 71 76  
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Trp Glu Glu Ala Glu Leu Pro Ala Glu Leu Phe Gln Lys Lys Val Val  
77 82 87 92  
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Ala Ser Phe Pro Arg Thr Val Leu Ser Thr Gly Met Asp Asn Arg Tyr  
93 98 103 108

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Leu Val Leu Ala Val Asn Thr Val Gln Asn Lys Glu Gly Asn Cys Glu	
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Lys Arg Leu Val Ile Thr Ala Ser Gln Ser Leu Glu Asn Lys Glu Leu	
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Cys Ile Leu Arg Asn Asp Trp Cys Ser Val Pro Val Glu Pro Gly Asp	
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Ile Ile His Leu Glu Gly Asp Cys Thr Ser Asp Thr Trp Ile Ile Asp	
157 162 167 172	
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Lys Asp Phe Gly Tyr Leu Ile Leu Tyr Pro Asp Met Leu Ile Ser Gly	
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Thr Ser Ile Ala Ser Ser Ile Arg Cys Met Arg Arg Ala Val Leu Ser	
189 194 199 204	
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Glu Thr Phe Arg Ser Ser Asp Pro Ala Thr Arg Gln Met Leu Ile Gly	
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Thr Val Leu His Glu Val Phe Gln Lys Ala Ile Asn Asn Ser Phe Ala	
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Pro Glu Lys Leu Gln Glu Leu Ala Phe Gln Thr Ile Gln Glu Ile Arg	
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His Leu Lys Glu Met Tyr Arg Leu Asn Leu Ser Gln Asp Glu Ile Lys	
253 258 263 268	
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Gln Glu Val Glu Asp Tyr Leu Pro Ser Phe Cys Lys Trp Ala Gly Asp	
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Phe Met His Lys Asn Thr Ser Thr Asp Phe Pro Gln Met Gln Leu Ser	
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Val Lys Pro Met Asp Ile Glu Glu Ser Ile Trp Ser Pro Arg Phe Gly	
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His Leu Lys Gln Thr His Leu Glu Tyr Phe Ser Leu Trp Cys Leu Met	
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Leu Thr Leu Glu Ser Gln Ser Lys Asp Asn Lys Lys Asn His Gln Asn	
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749					754					759					764	
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765					770					775					780	
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Ser Arg Lys Ile Phe	Asp Phe Cys Ile Val	Asp Glu Ala Ser Gln Ile		
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Ser Gln Pro Ile Cys	Leu Gly Pro Leu Phe	Phe Ser Arg Arg Phe Val		
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Lys Ile Met Ser Leu	Ser Asn Lys Leu Thr	Tyr Glu Gly Lys Leu Glu		
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Cys Gly Ser Asp Lys	Val Ala Asn Ala Val	Ile Asn Leu Arg His Phe		
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Lys Asp Val Lys Leu	Glu Leu Glu Phe Tyr	Ala Asp Tyr Ser Asp Asn		
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Pro Trp Leu Met Gly	Val Phe Glu Pro Asn	Asn Pro Val Cys Phe Leu		
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Ser Asn Val Thr Glu	Ala Lys Leu Ile Val	Phe Leu Thr Ser Ile Phe		
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Val Lys Ala Gly Cys	Ser Pro Ser Asp Ile	Gly Ile Ile Ala Pro Tyr		
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Arg Gln Gln Leu Lys	Ile Ile Asn Asp Leu	Leu Leu Ala Arg Ser Ile Gly		
1005	1010	1015	1020	





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Lys Leu Gln Glu Leu Asp Leu Thr Gly Asn Pro Arg Leu Val Leu Asp	
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Thr Met Leu Gly Asp Val Ala Val Ala Val His Pro Lys Asp Thr Arg	
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Tyr Gln His Leu Lys Gly Lys Asn Val Ile His Pro Phe Leu Ser Arg	
556 561 566 571	
agc ctt ccc att gtc ttc gat gaa ttt gtg gac atg gac ttt ggc aca	2020
Ser Leu Pro Ile Val Phe Asp Glu Phe Val Asp Met Asp Phe Gly Thr	
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ggt gct gtg aag atc acc ccc gca cat gac caa aat gac tat gaa gtt	2068
Gly Ala Val Lys Ile Thr Pro Ala His Asp Gln Asn Asp Tyr Glu Val	
588 593 598 603	
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Gly Gln Arg His Gly Leu Glu Ala Ile Ser Ile Met Asp Ser Arg Gly	
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Gly Pro His Gln Cys Ala Ser Ala Phe Pro Gly Pro Ala Gln Val *	
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Met Lys

1

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Asp Met Pro Leu Arg Ile His Val Leu Leu Gly Leu Ala Ile Thr Thr	
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Leu Val Gln Ala Val Asp Lys Lys Val Asp Cys Pro Arg Leu Cys Thr	
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Cys Glu Ile Arg Pro Trp Phe Thr Pro Arg Ser Ile Tyr Met Glu Ala	
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Ser Thr Val Asp Cys Asn Asp Leu Gly Leu Leu Thr Phe Pro Ala Arg	
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Leu Pro Ala Asn Thr Gln Ile Leu Leu Leu Gln Thr Asn Asn Ile Ala	
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aaa att gaa tac tcc aca gac ttt cca gta aac ctt act ggc ctg gat	525
Lys Ile Glu Tyr Ser Thr Asp Phe Pro Val Asn Leu Thr Gly Leu Asp	
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tta tct caa aac aat tta tct tca gtc acc aat att aat gta aaa aag	573
Leu Ser Gln Asn Asn Leu Ser Ser Val Thr Asn Ile Asn Val Lys Lys	
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Met Pro Gln Leu Leu Ser Val Tyr Leu Glu Glu Asn Lys Leu Thr Glu	
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Leu Pro Glu Lys Cys Leu Ser Glu Leu Ser Asn Leu Gln Glu Leu Tyr	
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Ile Asn His Asn Leu Leu Ser Thr Ile Ser Pro Gly Ala Phe Ile Gly	
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Leu His Asn Leu Leu Arg Leu His Leu Asn Ser Asn Arg Leu Gln Met	
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Ile Asn Ser Lys Trp Phe Asp Ala Leu Pro Asn Leu Glu Ile Leu Met	
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Ile Gly Glu Asn Pro Ile Ile Arg Ile Lys Asp Met Asn Phe Lys Pro	
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Leu Ile Asn Leu Arg Ser Leu Val Ile Ala Gly Ile Asn Leu Thr Glu	

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Phe Tyr Asp Asn Arg Leu Ile Lys Val Pro His Val Ala Leu Gln Lys				
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gtt gta aat ctc aaa ttt ttg gat cta aat aaa aat cct att aat aga				1053
Val Val Asn Leu Lys Phe Leu Asp Leu Asn Lys Asn Pro Ile Asn Arg				
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Ile Arg Arg Gly Asp Phe Ser Asn Met Leu His Leu Lys Glu Leu Gly				
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Ile Asn Asn Met Pro Glu Leu Ile Ser Ile Asp Ser Leu Ala Val Asp				
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Asn Leu Pro Asp Leu Arg Lys Ile Glu Ala Thr Asn Asn Pro Arg Leu				
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Ser Tyr Ile His Pro Asn Ala Phe Phe Arg Leu Pro Lys Leu Glu Ser				
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ctc atg ctg aac agc aat gct ctc agt gcc ctg tac cat ggt acc att				1293
Leu Met Leu Asn Ser Asn Ala Leu Ser Ala Leu Tyr His Gly Thr Ile				
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gag tct ctg cca aac ctc aag gaa atc agc ata cac agt aac ccc atc				1341
Glu Ser Leu Pro Asn Leu Lys Glu Ile Ser Ile His Ser Asn Pro Ile				
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agg tgt gac tgt gtc atc cgt tgg atg aac atg aac aaa acc aac att				1389
Arg Cys Asp Cys Val Ile Arg Trp Met Asn Met Asn Lys Thr Asn Ile				
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Arg Phe Met Glu Pro Asp Ser Leu Phe Cys Val Asp Pro Pro Glu Phe				
387	392	397	402	
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Gln Gly Gln Asn Val Arg Gln Val His Phe Arg Asp Met Met Glu Ile				
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Cys Leu Pro Leu Ile Ala Pro Glu Ser Phe Pro Ser Asn Leu Asn Val				
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gaa gct ggg agc tat gtt tcc ttt cac tgt aga gct act gca gaa cca				1581
Glu Ala Gly Ser Tyr Val Ser Phe His Cys Arg Ala Thr Ala Glu Pro				
435	440	445	450	

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Gln Pro Glu Ile Tyr Trp Ile Thr Pro Ser Gly Gln Lys Leu Leu Pro	
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Asn Thr Leu Thr Asp Lys Phe Tyr Val His Ser Glu Gly Thr Leu Asp	
467 472 477 482	
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Ile Asn Gly Val Thr Pro Lys Glu Gly Gly Leu Tyr Thr Cys Ile Ala	
483 488 493 498	
act aac cta gtt ggc gct gac ttg aag tct gtt atg atc aaa gtg gat	1773
Thr Asn Leu Val Gly Ala Asp Leu Lys Ser Val Met Ile Lys Val Asp	
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Gly Ser Phe Pro Gln Asp Asn Asn Gly Ser Leu Asn Ile Lys Ile Arg	
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Ile Pro Thr Ile Tyr Gln Lys Asn Arg Lys Lys Cys Val Asn Val Thr	
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Thr Lys Gly Leu His Pro Asp Gln Lys Glu Tyr Glu Lys Asn Asn Thr	
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Thr Thr Leu Met Ala Cys Leu Gly Gly Leu Leu Gly Ile Ile Gly Val	
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Ile Cys Leu Ile Ser Cys Leu Ser Pro Glu Met Asn Cys Asp Gly Gly	
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His Ser Tyr Val Arg Asn Tyr Leu Gln Lys Pro Thr Phe Ala Leu Gly	
659 664 669 674	



71	76	81	86	
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Ala Asp Arg Leu Val	Gln Ile Thr Gln Phe Phe	Arg Phe Asp Gly Trp		
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Leu Ile Asn Ile Glu	Asn Ser Leu Ser Leu	Ala Ala Val Gly Asn Met		
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cct cct ttc ctg cgg	tac ctc acc aca cag	ctg cac cgg cag gtc cca		679
Pro Pro Phe Leu Arg	Tyr Leu Thr Thr Gln	Leu His Arg Gln Val Pro		
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Gly Gly Leu Val Leu	Trp Tyr Asp Ser Val	Val Gln Ser Gly Gln Leu		
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Lys Trp Gln Asp Glu	Leu Asn Gln His Asn	Arg Val Phe Phe Asp Ser		
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tgc gac ggc ttc ttc	act aac tat aac tgg	cgg gag gag cac ttg gag		823
Cys Asp Gly Phe Phe	Thr Asn Tyr Asn Trp	Arg Glu Glu His Leu Glu		
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cgg atg ctg ggg cag	gct ggg gag cgc cgg	gct gat gtg tac gtg ggc		871
Arg Met Leu Gly Gln	Ala Gly Glu Arg Arg	Ala Asp Val Tyr Val Gly		
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Val Asp Val Phe Ala	Arg Gly Asn Val Val	Gly Gly Arg Phe Asp Thr		
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Asp Lys Val Gly Gly	Gly Phe Arg Pro Arg	Ala Ser Gly Pro Val Pro		
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Pro Leu Gly Pro His	Phe Leu Met Asp Leu	Pro Phe Pro Ser Ala Pro		
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Gln Arg Asn Asp Ser	Ser Cys Ser Ser Gln	Ser Gly Asp Pro Val Ala		
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Pro	Ser	Leu	Ile	Leu	Asp	Thr	Val	Leu	Phe	Gln	Ile	Asp	Glu	His	Lys		
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Lys	Arg	Ala	Lys	Gln	Phe	His	Glu	Ala	Trp	Ser	Lys	Leu	Met	Glu	Trp		
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Ser Lys Gln Thr Arg Leu Glu Ala Ala Leu Arg Gln Ala Glu Glu Phe				
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His Ser Val Val His Ala Leu Leu Glu Trp Leu Ala Glu Ala Glu Gln				
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Thr Leu Arg Phe His Gly Val Leu Pro Asp Asp Glu Asp Ala Leu Arg				
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Ile Cys His Pro Asp Ser Ile Thr Thr Ile Lys His Trp Ile Thr Ile				
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Gln Arg Leu Ala Ser Ala Leu Ala Gly Leu Ile Ala Lys Gln Glu Leu				
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 <222> (1) ... (2850)  
 <223> n = a,t,c or g

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                               Met Ile Arg Asp Leu Ser Lys Met Tyr Pro
                               1           5

cag acc aga cac ccg gca ccg cat cag cct gct caa ccc ttt aaa ttt      158
Gln Thr Arg His Pro Ala Pro His Gln Pro Ala Gln Pro Phe Lys Phe
11           16           21           26

aca att tcc gaa tcc tgt gat cgg att aag gaa gag ttt cag ttt tta      206
Thr Ile Ser Glu Ser Cys Asp Arg Ile Lys Glu Glu Phe Gln Phe Leu
27           32           37           42

cag gct caa tac cac agt ctg aag ctg gaa tgt gag aaa ctc gcc agt      254
Gln Ala Gln Tyr His Ser Leu Lys Leu Glu Cys Glu Lys Leu Ala Ser
43           48           53           58

gag aag aca gag atg cag cgg cat tat gtc atg tat tat gaa atg tcc      302
Glu Lys Thr Glu Met Gln Arg His Tyr Val Met Tyr Tyr Glu Met Ser
59           64           69           74

tat ggg ttg aat ata gaa atg cac aag cag gca gag att gtc aag agg      350
Tyr Gly Leu Asn Ile Glu Met His Lys Gln Ala Glu Ile Val Lys Arg
75           80           85           90

ctg aat gct atc tgt gca caa gtc att cct ttc ctg tcc caa gag cac      398
Leu Asn Ala Ile Cys Ala Gln Val Ile Pro Phe Leu Ser Gln Glu His
91           96           101          106

cag caa caa gtg gtg cag gct gtg gaa cgg gcc aag cag gtg acc atg      446
Gln Gln Gln Val Val Gln Ala Val Glu Arg Ala Lys Gln Val Thr Met
107          112          117          122

gca gaa ctg aac gcc atc att ggg cag caa caa ctc cag gcc cag cat      494
Ala Glu Leu Asn Ala Ile Ile Gly Gln Gln Gln Leu Gln Ala Gln His
123          128          133          138
  
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tta tca cat gga cat ggt ctc ccc gta cct ctg act cca cac cct tca	542
Leu Ser His Gly His Gly Leu Pro Val Pro Leu Thr Pro His Pro Ser	
139 144 149 154	
ggg ctc cag ccc cct gcc att cca ccc atc ggt agc agt gcc ggg ctt	590
Gly Leu Gln Pro Pro Ala Ile Pro Pro Ile Gly Ser Ser Ala Gly Leu	
155 160 165 170	
ctg gcc ctc tcc agt gct cta gga ggt cag tcc cat ctt cca att aaa	638
Leu Ala Leu Ser Ser Ala Leu Gly Gly Gln Ser His Leu Pro Ile Lys	
171 176 181 186	
gat gag aag aag cac cat gac aat gat cac caa aga gac aga gac tcc	686
Asp Glu Lys Lys His His Asp Asn Asp His Gln Arg Asp Arg Asp Ser	
187 192 197 202	
atc aag agc tct tca gta tcc cca tca gcc agt ttc cga ggt gct gag	734
Ile Lys Ser Ser Ser Val Ser Pro Ser Ala Ser Phe Arg Gly Ala Glu	
203 208 213 218	
aag cac aga aac tcc gca gac tac tcc tca gag agc aaa aag cag aaa	782
Lys His Arg Asn Ser Ala Asp Tyr Ser Ser Glu Ser Lys Lys Gln Lys	
219 224 229 234	
act gaa gaa aag gaa att gca gct cgt tat gac agc gat ggt gag aaa	830
Thr Glu Glu Lys Glu Ile Ala Ala Arg Tyr Asp Ser Asp Gly Glu Lys	
235 240 245 250	
agt gat gac aac ttg gtg gtt gac gtt tcc aat gag gat cca tct tcc	878
Ser Asp Asp Asn Leu Val Val Asp Val Ser Asn Glu Asp Pro Ser Ser	
251 256 261 266	
cct cga ggg agc cca gca cat tcc ccc aga gag aat ggc cta gac aag	926
Pro Arg Gly Ser Pro Ala His Ser Pro Arg Glu Asn Gly Leu Asp Lys	
267 272 277 282	
aca cgc ctg ctc aag aaa gat gcc ccg att agt cca gcc tct att gca	974
Thr Arg Leu Leu Lys Lys Asp Ala Pro Ile Ser Pro Ala Ser Ile Ala	
283 288 293 298	
tct tcc agc agt act ccc tcc tcc aaa tcc aaa gaa ctt agc ctt aat	1022
Ser Ser Ser Ser Thr Pro Ser Ser Lys Ser Lys Glu Leu Ser Leu Asn	
299 304 309 314	
gaa aaa tct act act ccc gtc tca aag tcc aat acc cct act cca cga	1070
Glu Lys Ser Thr Thr Pro Val Ser Lys Ser Asn Thr Pro Thr Pro Arg	
315 320 325 330	
act gat gcg ccc acc cca ggc agt aac tct act ccc gga ttg agg cct	1118
Thr Asp Ala Pro Thr Pro Gly Ser Asn Ser Thr Pro Gly Leu Arg Pro	
331 336 341 346	
gta cct gga aaa cca cca gga gtt gac cct ttg gcc tca agc cta agg	1166
Val Pro Gly Lys Pro Pro Gly Val Asp Pro Leu Ala Ser Ser Leu Arg	
347 352 357 362	
acc cca atg gca gta cct tgt cca tat cca act cca ttt ggg att gtg	1214

Thr Pro Met Ala Val	Pro Cys Pro Tyr Pro	Thr Pro Phe Gly Ile Val	
363	368	373	378
ccc cat gct gga atg	aac gga gag ctg acc	agc ccc gga gcg gcc tac	1262
Pro His Ala Gly Met	Asn Gly Glu Leu Thr	Ser Pro Gly Ala Ala Tyr	
379	384	389	394
gct ggg ctc cac aac	atc tcc cct cag atg	agc gca gct gct gcc gcc	1310
Ala Gly Leu His Asn	Ile Ser Pro Gln Met	Ser Ala Ala Ala Ala Ala	
395	400	405	410
gcc gct gct gct gct	gcc tat ggg aga tca	cca gtg gtg gga ttt gat	1358
Ala Ala Ala Ala Ala	Ala Tyr Gly Arg Ser	Pro Val Val Gly Phe Asp	
411	416	421	426
cca cac cat cac atg	cgt gtg cca gca ata	cct cca aac ctg aca ggc	1406
Pro His His His Met	Arg Val Pro Ala Ile	Pro Pro Asn Leu Thr Gly	
427	432	437	442
att cca gga gga aaa	cca gca tac tcc ttc	cat gtt agc gca gat ggt	1454
Ile Pro Gly Gly Lys	Pro Ala Tyr Ser Phe	His Val Ser Ala Asp Gly	
443	448	453	458
cag atg cag cct gtc	cct ttt cca ccc gac	gcc ctc atc gga cct gga	1502
Gln Met Gln Pro Val	Pro Phe Pro Pro Asp	Ala Leu Ile Gly Pro Gly	
459	464	469	474
atc ccc cgg cat gct	cgc cag atc aac acc	ctc aac cac ggg gag gtg	1550
Ile Pro Arg His Ala	Arg Gln Ile Asn Thr	Leu Asn His Gly Glu Val	
475	480	485	490
gtg tgc gcg gtg acc	atc agc aac ccc acg	aga cac gtg tac acg ggt	1598
Val Cys Ala Val Thr	Ile Ser Asn Pro Thr	Arg His Val Tyr Thr Gly	
491	496	501	506
ggg aag ggc tgc gtc	aag gtc tgg gac atc	agc cac cca ggc aat aag	1646
Gly Lys Gly Cys Val	Lys Val Trp Asp Ile	Ser His Pro Gly Asn Lys	
507	512	517	522
agt cct gtc tcc cag	ctc gac tgt ctg aac	agg gat aac tac atc cgt	1694
Ser Pro Val Ser Gln	Leu Asp Cys Leu Asn	Arg Asp Asn Tyr Ile Arg	
523	528	533	538
tcc tgc aga ttg ctc	cct gat ggt cgc acc	cta att gtt gga ggg gaa	1742
Ser Cys Arg Leu Leu	Pro Asp Gly Arg Thr	Leu Ile Val Gly Gly Glu	
539	544	549	554
gcc agt act ttg tcc	att tgg gac ctg gcg	gct cca acc cca cgc atc	1790
Ala Ser Thr Leu Ser	Ile Trp Asp Leu Ala	Ala Pro Thr Pro Arg Ile	
555	560	565	570
aag gca gag ctg aca	tcc tcg gcc ccc gcc	tgc tat gcc ctg gcc atc	1838
Lys Ala Glu Leu Thr	Ser Ser Ala Pro Ala	Cys Tyr Ala Leu Ala Ile	
571	576	581	586
agc ccc gat tcc aag	gtc tgc ttc tca tgc	tgc agc gac ggc aac atc	1886
Ser Pro Asp Ser Lys	Val Cys Phe Ser Cys	Cys Ser Asp Gly Asn Ile	

587	592	597	602	
gct gtg tgg gat ctg cac aac cag acc ttg gtg agg caa ttc cag ggc				1934
Ala Val Trp Asp Leu His Asn Gln Thr Leu Val Arg Gln Phe Gln Gly				
603	608	613	618	
cac aca gat gga gcc agc tgt att gac att tct aat gat ggc acc aag				1982
His Thr Asp Gly Ala Ser Cys Ile Asp Ile Ser Asn Asp Gly Thr Lys				
619	624	629	634	
ctc tgg aca ggt ggt ttg gac aac acg gtc agg tcc tgg gac ctg cgc				2030
Leu Trp Thr Gly Gly Leu Asp Asn Thr Val Arg Ser Trp Asp Leu Arg				
635	640	645	650	
gag ggg cgg cag ctg cag cag cac gac ttc acc tcc cag atc ttt tct				2078
Glu Gly Arg Gln Leu Gln Gln His Asp Phe Thr Ser Gln Ile Phe Ser				
651	656	661	666	
ctg ggc tac tgc cca act gga gag tgg ctt gca gtg ggg atg gag aac				2126
Leu Gly Tyr Cys Pro Thr Gly Glu Trp Leu Ala Val Gly Met Glu Asn				
667	672	677	682	
agc aat gtg gaa gtt ttg cat gtc acc aag cca gac aaa tac caa cta				2174
Ser Asn Val Glu Val Leu His Val Thr Lys Pro Asp Lys Tyr Gln Leu				
683	688	693	698	
cat ctt cat gag agc tgt gtg ctg tcg ctc aag ttt gcc cat tgt ggc				2222
His Leu His Glu Ser Cys Val Leu Ser Leu Lys Phe Ala His Cys Gly				
699	704	709	714	
aaa tgg ttt gta agc act gga aag gac aac ctt ctg aat gcc tgg aga				2270
Lys Trp Phe Val Ser Thr Gly Lys Asp Asn Leu Leu Asn Ala Trp Arg				
715	720	725	730	
aca cct tat ggg gcc agt ata ttc cag tcc aaa gaa tcc tca tcg gtg				2318
Thr Pro Tyr Gly Ala Ser Ile Phe Gln Ser Lys Glu Ser Ser Ser Val				
731	736	741	746	
ctt agc tgt gac atc tcc gtg gac gac aaa tac att gtc act ggc tct				2366
Leu Ser Cys Asp Ile Ser Val Asp Asp Lys Tyr Ile Val Thr Gly Ser				
747	752	757	762	
ggg gat aag aag gcc aca gtt tat gaa gtt att tat taa agacaaatct				2415
Gly Asp Lys Lys Ala Thr Val Tyr Glu Val Ile Tyr *				
763	768	773		
tcatgcagac tggactttctc ctccctggtag cactttgctc tgtcatcctt tttgttcacc				2475
cccatccccg catctaaaac caaggatttc agatactcat tgcagttgtg gagtttaatc				2535
ccctttctta acctcacttc ccacttgcta ttgaattgtg aatagtcatt aaaaacctgt				2595
gataccaaat cttcagctgt ctacttgga gaacatggaa taagcatact taacagtga				2655
aagaatcttt aattatgtat tatatctgta atatatttat tttgtttaaa gaaggctttc				2715
taacaatgac tgactaaata aagctgtctg ctccctggcat tggataatgg aggggtgcggt				2775



tgtatttgga taccctncc cccctttttt tgggcaaggg ngggggnagg gaggggtttt 2835

aaaatnattg gnttt 2850

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<212> DNA  
<213> Homo sapiens

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<222> (81)..(2342)

<220>  
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Met Ile Arg Asp Leu Ser Lys Met Tyr Pro  
1 5

cag acc aga cac ccg gca ccg cat cag cct gct caa ccc ttt aaa ttt 158  
Gln Thr Arg His Pro Ala Pro His Gln Pro Ala Gln Pro Phe Lys Phe  
11 16 21 26

aca att tcc gaa tcc tgt gat cgg att aag gaa gag ttt cag ttt tta 206  
Thr Ile Ser Glu Ser Cys Asp Arg Ile Lys Glu Glu Phe Gln Phe Leu  
27 32 37 42

cag gct caa tac cac agt ctg aag ctg gaa tgt gag aaa ctc gcc agt 254  
Gln Ala Gln Tyr His Ser Leu Lys Leu Glu Cys Glu Lys Leu Ala Ser  
43 48 53 58

gag aag aca gag atg cag cgg cat tat gtc atg tat tat gaa atg tcc 302  
Glu Lys Thr Glu Met Gln Arg His Tyr Val Met Tyr Tyr Glu Met Ser  
59 64 69 74

tat ggg ttg aat ata gaa atg cac aag cag cac cag caa caa gtg gtg 350  
Tyr Gly Leu Asn Ile Glu Met His Lys Gln His Gln Gln Gln Val Val  
75 80 85 90

cag gct gtg gaa ccg gcc aag cag gtg acc atg gca gaa ctg aac gcc 398  
Gln Ala Val Glu Arg Ala Lys Gln Val Thr Met Ala Glu Leu Asn Ala  
91 96 101 106

atc att ggg cag caa caa ctc cag gcc cag cat tta tca cat gga cat 446  
Ile Ile Gly Gln Gln Gln Leu Gln Ala Gln His Leu Ser His Gly His  
107 112 117 122

ggt ctc ccc gta cct ctg act cca cac cct tca ggg ctc cag ccc cct	494
Gly Leu Pro Val Pro Leu Thr Pro His Pro Ser Gly Leu Gln Pro Pro	
123 128 133 138	
gcc att cca ccc atc ggt agc agt gcc ggg ctt ctg gcc ctc tcc agt	542
Ala Ile Pro Pro Ile Gly Ser Ser Ala Gly Leu Leu Ala Leu Ser Ser	
139 144 149 154	
gct cta gga ggt cag tcc cat ctt cca att aaa gat gag aag aag cac	590
Ala Leu Gly Gly Gln Ser His Leu Pro Ile Lys Asp Glu Lys Lys His	
155 160 165 170	
cat gac aat gat cac caa aga gac aga gac tcc atc aag agc tct tca	638
His Asp Asn Asp His Gln Arg Asp Arg Asp Ser Ile Lys Ser Ser Ser	
171 176 181 186	
gta tcc cca tca gcc agt ttc cga ggt gct gag aag cac aga aac tcc	686
Val Ser Pro Ser Ala Ser Phe Arg Gly Ala Glu Lys His Arg Asn Ser	
187 192 197 202	
gca gac tac tcc tca gag agc aaa aag cag aaa act gaa gaa aag gaa	734
Ala Asp Tyr Ser Ser Glu Ser Lys Lys Gln Lys Thr Glu Glu Lys Glu	
203 208 213 218	
att gca gct cgt tat gac agc gat ggt gag aaa agt gat gac aac ttg	782
Ile Ala Ala Arg Tyr Asp Ser Asp Gly Glu Lys Ser Asp Asp Asn Leu	
219 224 229 234	
gtg gtt gac gtt tcc aat gag gat cca tct tcc cct cga ggg agc cca	830
Val Val Asp Val Ser Asn Glu Asp Pro Ser Ser Pro Arg Gly Ser Pro	
235 240 245 250	
gca cat tcc ccc aga gag aat ggc cta gac aag aca cgc ctg ctc aag	878
Ala His Ser Pro Arg Glu Asn Gly Leu Asp Lys Thr Arg Leu Leu Lys	
251 256 261 266	
aaa gat gcc ccg att agt cca gcc tct att gca tct tcc agc agt act	926
Lys Asp Ala Pro Ile Ser Pro Ala Ser Ile Ala Ser Ser Ser Ser Thr	
267 272 277 282	
ccc tcc tcc aaa tcc aaa gaa ctt agc ctt aat gaa aaa tct act act	974
Pro Ser Ser Lys Ser Lys Glu Leu Ser Leu Asn Glu Lys Ser Thr Thr	
283 288 293 298	
ccc gtc tca aag tcc aat acc cct act cca cga act gat gcg ccc acc	1022
Pro Val Ser Lys Ser Asn Thr Pro Thr Pro Arg Thr Asp Ala Pro Thr	
299 304 309 314	
cca ggc agt aac tct act ccc gga ttg agg cct gta cct gga aaa cca	1070
Pro Gly Ser Asn Ser Thr Pro Gly Leu Arg Pro Val Pro Gly Lys Pro	
315 320 325 330	
cca gga gtt gac cct ttg gcc tca agc cta agg acc cca atg gca gta	1118
Pro Gly Val Asp Pro Leu Ala Ser Ser Leu Arg Thr Pro Met Ala Val	
331 336 341 346	
cct tgt cca tat cca act cca ttt ggg att gtg ccc cat gct gga atg	1166

Pro Cys Pro Tyr Pro Thr Pro Phe Gly Ile Val Pro His Ala Gly Met	
347 352 357 362	
aac gga gag ctg acc agc ccc gga gcg gcc tac gct ggg ctc cac aac	1214
Asn Gly Glu Leu Thr Ser Pro Gly Ala Ala Tyr Ala Gly Leu His Asn	
363 368 373 378	
atc tcc cct cag atg agc gca gct gct gcc gcc gcc gct gct gct gct	1262
Ile Ser Pro Gln Met Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala	
379 384 389 394	
gcc tat ggg aga tca cca gtg gtg gga ttt gat cca cac cat cac atg	1310
Ala Tyr Gly Arg Ser Pro Val Val Gly Phe Asp Pro His His His Met	
395 400 405 410	
cgt gtg cca gca ata cct cca aac ctg aca ggc att cca gga gga aaa	1358
Arg Val Pro Ala Ile Pro Pro Asn Leu Thr Gly Ile Pro Gly Gly Lys	
411 416 421 426	
cca gca tac tcc ttc cat gtt agc gca gat ggt cag atg cag cct gtc	1406
Pro Ala Tyr Ser Phe His Val Ser Ala Asp Gly Gln Met Gln Pro Val	
427 432 437 442	
cct ttt cca ccc gac gcc ctc atc gga cct gga atc ccc cgg cat gct	1454
Pro Phe Pro Pro Asp Ala Leu Ile Gly Pro Gly Ile Pro Arg His Ala	
443 448 453 458	
cgc cag atc aac acc ctc aac cac ggg gag gtg gtg tgc gcg gtg acc	1502
Arg Gln Ile Asn Thr Leu Asn His Gly Glu Val Val Cys Ala Val Thr	
459 464 469 474	
atc agc aac ccc acg aga cac gtg tac acg ggt ggg aag ggc tgc gtc	1550
Ile Ser Asn Pro Thr Arg His Val Tyr Thr Gly Gly Lys Gly Cys Val	
475 480 485 490	
aag gtc tgg gac atc agc cac cca ggc aat aag agt cct gtc tcc cag	1598
Lys Val Trp Asp Ile Ser His Pro Gly Asn Lys Ser Pro Val Ser Gln	
491 496 501 506	
ctc gac tgt ctg aac agg gat aac tac atc cgt tcc tgc aga ttg ctc	1646
Leu Asp Cys Leu Asn Arg Asp Asn Tyr Ile Arg Ser Cys Arg Leu Leu	
507 512 517 522	
cct gat ggt cgc acc cta att gtt gga ggg gaa gcc agt act ttg tcc	1694
Pro Asp Gly Arg Thr Leu Ile Val Gly Gly Glu Ala Ser Thr Leu Ser	
523 528 533 538	
att tgg gac ctg gcg gct cca acc cca cgc atc aag gca gag ctg aca	1742
Ile Trp Asp Leu Ala Ala Pro Thr Pro Arg Ile Lys Ala Glu Leu Thr	
539 544 549 554	
tcc tcg gcc ccc gcc tgc tat gcc ctg gcc atc agc ccc gat tcc aag	1790
Ser Ser Ala Pro Ala Cys Tyr Ala Leu Ala Ile Ser Pro Asp Ser Lys	
555 560 565 570	
gtc tgc ttc tca tgc tgc agc gac ggc aac atc gct gtg tgg gat ctg	1838
Val Cys Phe Ser Cys Cys Ser Asp Gly Asn Ile Ala Val Trp Asp Leu	

571	576	581	586	
cac aac cag acc ttg gtg agg caa ttc cag ggc cac aca gat gga gcc				1886
His Asn Gln Thr Leu Val Arg Gln Phe Gln Gly His Thr Asp Gly Ala				
587	592	597	602	
agc tgt att gac att tct aat gat ggc acc aag ctc tgg aca ggt ggt				1934
Ser Cys Ile Asp Ile Ser Asn Asp Gly Thr Lys Leu Trp Thr Gly Gly				
603	608	613	618	
ttg gac aac acg gtc agg tcc tgg gac ctg cgc gag ggg cgg cag ctg				1982
Leu Asp Asn Thr Val Arg Ser Trp Asp Leu Arg Glu Gly Arg Gln Leu				
619	624	629	634	
cag cag cac gac ttc acc tcc cag atc ttt tct ctg ggc tac tgc cca				2030
Gln Gln His Asp Phe Thr Ser Gln Ile Phe Ser Leu Gly Tyr Cys Pro				
635	640	645	650	
act gga gag tgg ctt gca gtg ggg atg gag aac agc aat gtg gaa gtt				2078
Thr Gly Glu Trp Leu Ala Val Gly Met Glu Asn Ser Asn Val Glu Val				
651	656	661	666	
ttg cat gtc acc aag cca gac aaa tac caa cta cat ctt cat gag agc				2126
Leu His Val Thr Lys Pro Asp Lys Tyr Gln Leu His Leu His Glu Ser				
667	672	677	682	
tgt gtg ctg tcg ctc aag ttt gcc cat tgt ggc aaa tgg ttt gta agc				2174
Cys Val Leu Ser Leu Lys Phe Ala His Cys Gly Lys Trp Phe Val Ser				
683	688	693	698	
act gga aag gac aac ctt ctg aat gcc tgg aga aca cct tat ggg gcc				2222
Thr Gly Lys Asp Asn Leu Leu Asn Ala Trp Arg Thr Pro Tyr Gly Ala				
699	704	709	714	
agt ata ttc cag tcc aaa gaa tcc tca tcg gtg ctt agc tgt gac atc				2270
Ser Ile Phe Gln Ser Lys Glu Ser Ser Ser Val Leu Ser Cys Asp Ile				
715	720	725	730	
tcc gtg gac gac aaa tac att gtc act ggc tct ggg gat aag aag gcc				2318
Ser Val Asp Asp Lys Tyr Ile Val Thr Gly Ser Gly Asp Lys Lys Ala				
731	736	741	746	
aca gtt tat gaa gtt att tat taa agacaaatct tcatgcagac tggacttctc				2372
Thr Val Tyr Glu Val Ile Tyr *				
747	752			
ctcctggtag cactttgctc tgtcatcctt tttgttcacc cccatccccg catctaaaac				2432
caaggatttc agatactcat tgcagttgtg gagtttaatc cccctttctta acctcacttc				2492
ccacttgcta ttgaattgtg aatagtcatt aaaaacctgt gataccaaat cttcagctgt				2552
ctacttgga gaacatggaa taagcatact taacagtgaa aagaatcttt aattatgtat				2612
tatatctgta atatatttat tttgtttaaa gaaggctttc taacaatgac tgactaaata				2672
aagctgtctg ctcctggcat tggataatgg aggggtgcggt tgtattttgga taccctncc				2732

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2787

<210> 358  
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<222> (219) .. (2045)

<220>  
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ggcggagccc atgccccggg acggcggcg gacccggaga gacaaatccg gggccccggg 180

catgtccccg gggcccccggt gaggaggcgg cggcggct atg gag atc gcg ccg 233  
Met Glu Ile Ala Pro  
1

cag gag gcg ccg ccc gtg ccg ggc gcg gac ggc gac att gaa gag gcc 281  
Gln Glu Ala Pro Pro Val Pro Gly Ala Asp Gly Asp Ile Glu Glu Ala  
6 11 16 21

cca gct gag gcc ggg tct ccc agc ccc gcg tcg ccc ccc gcc gat ggg 329  
Pro Ala Glu Ala Gly Ser Pro Ser Pro Ala Ser Pro Pro Ala Asp Gly  
22 27 32 37

cgc ctc aag gct gca gcc aag cgc gtc aca ttc ccg tcc gac gag gat 377  
Arg Leu Lys Ala Ala Ala Lys Arg Val Thr Phe Pro Ser Asp Glu Asp  
38 43 48 53

atc gtg tct gga gca gtg gag ccc aaa gac ccc tgg aga cat gcc cag 425  
Ile Val Ser Gly Ala Val Glu Pro Lys Asp Pro Trp Arg His Ala Gln  
54 59 64 69

aat gtg acc gtg gac gag gtc atc ggc gcc tac aag cag gcc tgc cag 473  
Asn Val Thr Val Asp Glu Val Ile Gly Ala Tyr Lys Gln Ala Cys Gln  
70 75 80 85

aag ctg aac tgc agg cag atc ccc aag ctc ctc agg cag ctg cag gaa 521  
Lys Leu Asn Cys Arg Gln Ile Pro Lys Leu Leu Arg Gln Leu Gln Glu  
86 91 96 101

ttc aca gac ctc ggg cac cgc ctc gac tgt ctg gac ctg aaa ggt gag 569  
Phe Thr Asp Leu Gly His Arg Leu Asp Cys Leu Asp Leu Lys Gly Glu

102	107	112	117	
aag ctt gac tac aag	acc tgt gag gcc ctg	gaa gag gtc ttc aag	agg	617
Lys Leu Asp Tyr Lys	Thr Cys Glu Ala Leu	Glu Glu Val Phe Lys	Arg	
118	123	128	133	
ctg cag ttc aag gtc	gtg gac ctg gag cag	aca aac ctg gat gaa	gat	665
Leu Gln Phe Lys Val	Val Asp Leu Glu Gln	Thr Asn Leu Asp Glu	Asp	
134	139	144	149	
ggt gcc tcg gcc ctc	ttc gac atg atc gag	tac tac gag tcg gcc	acc	713
Gly Ala Ser Ala Leu	Phe Asp Met Ile Glu	Tyr Tyr Glu Ser Ala	Thr	
150	155	160	165	
cac ctc aac atc tcc	ttc aac aag cac atc	ggc acc cgg ggc tgg	cag	761
His Leu Asn Ile Ser	Phe Asn Lys His Ile	Gly Thr Arg Gly Trp	Gln	
166	171	176	181	
gcg gcc gcc cac atg	atg cgc aag acg agc	tgc ctg cag tat ctg	gac	809
Ala Ala Ala His Met	Met Arg Lys Thr Ser	Cys Leu Gln Tyr Leu	Asp	
182	187	192	197	
gcc cgc aac acg ccc	ctg ctg gac cac tcg	ggc ccc ttc gtg gcc	cgt	857
Ala Arg Asn Thr Pro	Leu Leu Asp His Ser	Ala Pro Phe Val Ala	Arg	
198	203	208	213	
gcc ctg cgc atc cgc	agc agc ctg gca gtg	ctg cac ttg gag aac	gcc	905
Ala Leu Arg Ile Arg	Ser Ser Leu Ala Val	Leu His Leu Glu Asn	Ala	
214	219	224	229	
agc ctg tcg ggg cgg	ccc ctc atg ctg ctc	gcc acg gcc ctg aag	atg	953
Ser Leu Ser Gly Arg	Pro Leu Met Leu Leu	Ala Thr Ala Leu Lys	Met	
230	235	240	245	
aac atg aac ctg cgg	gag ctg tac ctg gcg	gac aac aag ctc aac	ggc	1001
Asn Met Asn Leu Arg	Glu Leu Tyr Leu Ala	Asp Asn Lys Leu Asn	Gly	
246	251	256	261	
ctg cag gac tcg gcc	cag ctg ggt aac ctg	ctc aag ttc aac tgc	tcc	1049
Leu Gln Asp Ser Ala	Gln Leu Gly Asn Leu	Leu Lys Phe Asn Cys	Ser	
262	267	272	277	
ctg cag atc ctg gac	ctc cgg aac aac cac	gtg cta gac tcg ggt	ctg	1097
Leu Gln Ile Leu Asp	Leu Arg Asn Asn His	Val Leu Asp Ser Gly	Leu	
278	283	288	293	
gcc tac atc tgc gag	ggc ctc aag gag cag	agg aag ggg ctg gtg	acc	1145
Ala Tyr Ile Cys Glu	Gly Leu Lys Glu Gln	Arg Lys Gly Leu Val	Thr	
294	299	304	309	
ctg gtg ctg tgg aac	aac cag ctc acg cac	aca ggc atg gcc ttc	ctg	1193
Leu Val Leu Trp Asn	Asn Gln Leu Thr His	Thr Gly Met Ala Phe	Leu	
310	315	320	325	
ggc atg aca ctg agc	ctg gag acg ctg aac	ctg ggc cac aac ccc	atc	1241
Gly Met Thr Leu Ser	Leu Glu Thr Leu Asn	Leu Gly His Asn Pro	Ile	
326	331	336	341	

ggg aac gag ggt gtg cgg cac ctc aag aac ggg ctc atc agc aac cgc Gly Asn Glu Gly Val Arg His Leu Lys Asn Gly Leu Ile Ser Asn Arg 342 347 352 357	1289
agc gtg ctg cgc ctc ggg ctg gcc tcc acc aag ctc acg tgc gag ggc Ser Val Leu Arg Leu Gly Leu Ala Ser Thr Lys Leu Thr Cys Glu Gly 358 363 368 373	1337
gcg gtg gcg gtg gcg gag ttc atc gct gag agc ccc cgc ctc ctg aga Ala Val Ala Val Ala Glu Phe Ile Ala Glu Ser Pro Arg Leu Leu Arg 374 379 384 389	1385
ctg gac ctt cgg gag aac gag atc aag aca ggc ggg ctc atg gca ctg Leu Asp Leu Arg Glu Asn Glu Ile Lys Thr Gly Gly Leu Met Ala Leu 390 395 400 405	1433
tcg ttg gcc ctc aag gtg aac cac tca ctg ctg cgc ctg gac ctc gac Ser Leu Ala Leu Lys Val Asn His Ser Leu Leu Arg Leu Asp Leu Asp 406 411 416 421	1481
cgt gaa ccc aag aaa gag gcg gtg aag agc ttc atc gag acg cag aag Arg Glu Pro Lys Lys Glu Ala Val Lys Ser Phe Ile Glu Thr Gln Lys 422 427 432 437	1529
gcg ctg ctg gcc gag atc cag aac ggc tgc aag cgc aac ttg gtg ctg Ala Leu Leu Ala Glu Ile Gln Asn Gly Cys Lys Arg Asn Leu Val Leu 438 443 448 453	1577
gcg cgg gag agg gag gag aag gag cag ccg cca cag ctg tcg gcc tcc Ala Arg Glu Arg Glu Glu Lys Glu Gln Pro Pro Gln Leu Ser Ala Ser 454 459 464 469	1625
atg cct gag acc acc gcc acc gag ccc cag ccc gac gac gag ccc gcc Met Pro Glu Thr Thr Ala Thr Glu Pro Gln Pro Asp Asp Glu Pro Ala 470 475 480 485	1673
gct ggg gtg cag aac ggg gcc ccc agc ccc gca ccc agc ccg gac tca Ala Gly Val Gln Asn Gly Ala Pro Ser Pro Ala Pro Ser Pro Asp Ser 486 491 496 501	1721
gac tca gac tcg gac tcg gat ggg gag gaa gag gag gaa gag gaa ggg Asp Ser Asp Ser Asp Ser Asp Gly Glu Glu Glu Glu Glu Glu Glu Gly 502 507 512 517	1769
gag agg gac gag acc ccc tcc ggg gcc att gac acc cgg gac aca ggg Glu Arg Asp Glu Thr Pro Ser Gly Ala Ile Asp Thr Arg Asp Thr Gly 518 523 528 533	1817
tcc tct gag cct cag cca cca ccg gag ccg cct cgg tca ggg cca cca Ser Ser Glu Pro Gln Pro Pro Pro Glu Pro Pro Arg Ser Gly Pro Pro 534 539 544 549	1865
ctg ccc aac ggc ctg aag ccc gag ttc gcc ctg gca ctg ccc cct gag Leu Pro Asn Gly Leu Lys Pro Glu Phe Ala Leu Ala Leu Pro Pro Glu 550 555 560 565	1913

ccg ccc ccg ggg cct gag gtc aag ggg ggc agc tgc ggc ctg gag cac	1961
Pro Pro Pro Gly Pro Glu Val Lys Gly Gly Ser Cys Gly Leu Glu His	
566 571 576 581	
gaa ctg agc tgc tcc aag aac gag aag gag ctc gag gag ctg ctt ctg	2009
Glu Leu Ser Cys Ser Lys Asn Glu Lys Glu Leu Glu Glu Leu Leu Leu	
582 587 592 597	
gaa gcc agt cag gaa tcc ggg cag gag aca ctg tga cact ttagttccct	2059
Glu Ala Ser Gln Glu Ser Gly Gln Glu Thr Leu *	
598 603 608	
ttttccggtc ggtctgcat gagctgaggc cagagccatg agaactctgct caccttcccc	2119
ccagccttcc tgaggcccag gatgccaggg gtggggggcca ttctggggcc cccctcccc	2179
cacagcaaca ctacaagggg tgcaggagct acagggagtg gccctccgcg cgtgactcaa	2239
gcacttctat ttatgagccc agcactggaa gactctgggg gtgaatggga ggagggggag	2299
caggaggagg aggaggtctc caaggacatc aggcgcctgt tctggagggg ccaggcttgc	2359
cctgcggagg gcaggcgtcc tgggtggtgg tgggatggtc cctgtggcc ccgggcacag	2419
ggccgggcag gcagcctggt gccggagagg cgggtgcgtgc tgggtggtggt tgagatgcgc	2479
agaacagccc cagacagcgc aggccgggca ggggtggggg atgggagcag aggatcagag	2539
ctttcttttt ctcaagtga ataaatctat caggagctg gggcgggagc agccggcact	2599
ccgggaccct gctgtccagg cactggagg ctgcgccctg agaggcacta cagcccttgc	2659
ggggcgagtg gcatgggtgt gggtgagggt gggcagagg ctggggctac tcctgtcgg	2719
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a	2780

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cgagctcgga tccactagtc cagtgtggtg gaattctcaa gccgaattt cttaatctgt	120
tacctatctc ggcataattc ttcataaaaa cacaggtgct ctccctgccg atcctgtcca	180



actgatctct caaaccacca ccccttctac aaaacaacaa ctcctttcct tcctgggc 238  
 atg gtt gga tac ttt tac ctt tgg ata cct ggt ttt gcc atc cta aca 286  
 Met Val Gly Tyr Phe Tyr Leu Trp Ile Pro Gly Phe Ala Ile Leu Thr  
 1 5 10 15

aaa cca tta tgt aaa ctc aca aaa gaa aac cta gct gat gcc ata gat 334  
 Lys Pro Leu Cys Lys Leu Thr Lys Glu Asn Leu Ala Asp Ala Ile Asp  
 17 22 27 32

cct aaa tcc ttt tcc cac tcc tct ttc cgt tcc ttg aag aca gca tta 382  
 Pro Lys Ser Phe Ser His Ser Ser Phe Arg Ser Leu Lys Thr Ala Leu  
 33 38 43 48

gag aat gct tcc aca cta gct ctc cct gac tca tcc<sup>3</sup> caa ccc ttt ttc 430  
 Glu Asn Ala Ser Thr Leu Ala Leu Pro Asp Ser Ser Gln Pro Phe Phe  
 49 54 59 64

att aca cac agc cga agt gca ggg ctg tgt ggt cga aat tct tac aca 478  
 Ile Thr His Ser Arg Ser Ala Gly Leu Cys Gly Arg Asn Ser Tyr Thr  
 65 70 75 80

agg act ggg acc gct ccc tgt ggc ctt ttt atc caa aca act tga gct 526  
 Arg Thr Gly Thr Ala Pro Cys Gly Leu Phe Ile Gln Thr Thr \*  
 81 86 91

tactgtt 533

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 <212> DNA  
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agctcccgga tgtggagaag ctggggagaa ggcgtgggag gaag atg gac tcg gtg 116  
 Met Asp Ser Val  
 1

gag aag ggg gcc gcc acc tcc gtc tcc aac ccg cgg ggg cga ccg tcc 164  
 Glu Lys Gly Ala Ala Thr Ser Val Ser Asn Pro Arg Gly Arg Pro Ser  
 5 10 15 20

cgg ggc cgg ccg ccg aag ctg cag cgc aac tct cgc ggc ggc cag ggc 212  
 Arg Gly Arg Pro Pro Lys Leu Gln Arg Asn Ser Arg Gly Gly Gln Gly  
 21 26 31 36

cga ggt gtg gag aag ccc ccg cac ctg gca gcc cta att ctg gcc cgg 260  
 Arg Gly Val Glu Lys Pro Pro His Leu Ala Ala Leu Ile Leu Ala Arg  
 37 42 47 52

gga ggc agc aaa ggc atc ccc ctg aag aac att aag cac ctg gcg ggg	308
Gly Gly Ser Lys Gly Ile Pro Leu Lys Asn Ile Lys His Leu Ala Gly	
53 58 63 68	
gtc ccg ctc att ggc tgg gtc ctg cgt gcg gcc ctg gat tca ggg gcc	356
Val Pro Leu Ile Gly Trp Val Leu Arg Ala Ala Leu Asp Ser Gly Ala	
69 74 79 84	
ttc cag agt gta tgg gtt tgc aca gac cat gat gaa att gag aat gtg	404
Phe Gln Ser Val Trp Val Ser Thr Asp His Asp Glu Ile Glu Asn Val	
85 90 95 100	
gcc aaa caa ttt ggt gca caa gtt cat cga aga agt tct gaa gtt tca	452
Ala Lys Gln Phe Gly Ala Gln Val His Arg Arg Ser Ser Glu Val Ser	
101 106 111 116	
aaa gac agc tct acc tca cta gat gcc atc ata gaa ttt ctt aat tat	500
Lys Asp Ser Ser Thr Ser Leu Asp Ala Ile Ile Glu Phe Leu Asn Tyr	
117 122 127 132	
cat aat gag gtt gac att gta gga aat att caa gct act tct cca tgt	548
His Asn Glu Val Asp Ile Val Gly Asn Ile Gln Ala Thr Ser Pro Cys	
133 138 143 148	
tta cat cct act gat ctt caa aaa gtt gca gaa atg att cga gaa gaa	596
Leu His Pro Thr Asp Leu Gln Lys Val Ala Glu Met Ile Arg Glu Glu	
149 154 159 164	
gga tat gat tct gtt ttc tct gtt gtg aga cgc cat cag ttt cga tgg	644
Gly Tyr Asp Ser Val Phe Ser Val Val Arg Arg His Gln Phe Arg Trp	
165 170 175 180	
agt gaa att cag aaa gga gtt cgt gaa gtg acc gaa cct ctg aat tta	692
Ser Glu Ile Gln Lys Gly Val Arg Glu Val Thr Glu Pro Leu Asn Leu	
181 186 191 196	
aat cca gct aaa cgg cct cgt cga caa gac tgg gat gga gaa tta tat	740
Asn Pro Ala Lys Arg Pro Arg Arg Gln Asp Trp Asp Gly Glu Leu Tyr	
197 202 207 212	
gaa aat ggc tca ttt tat ttt gct aaa aga cat ttg ata gag atg ggt	788
Glu Asn Gly Ser Phe Tyr Phe Ala Lys Arg His Leu Ile Glu Met Gly	
213 218 223 228	
tac ttg cag ggt gga aaa atg gca tac tac gaa atg cga gct gaa cat	836
Tyr Leu Gln Gly Gly Lys Met Ala Tyr Tyr Glu Met Arg Ala Glu His	
229 234 239 244	
agt gtg gat ata gat gtg gat att gat tgg cct att gca gag caa aga	884
Ser Val Asp Ile Asp Val Asp Ile Asp Trp Pro Ile Ala Glu Gln Arg	
245 250 255 260	
gta tta aga tat ggc tat ttt ggc aaa gag aag ctt aag gaa ata aaa	932
Val Leu Arg Tyr Gly Tyr Phe Gly Lys Glu Lys Leu Lys Glu Ile Lys	
261 266 271 276	

ctt ttg gtt tgc aat att gat gga tgt ctc acc aat ggc cac att tat	980
Leu Leu Val Cys Asn Ile Asp Gly Cys Leu Thr Asn Gly His Ile Tyr	
277 282 287 292	
gta tca gga gac caa aaa gaa ata ata tct tat gat gta aaa gat gct	1028
Val Ser Gly Asp Gln Lys Glu Ile Ile Ser Tyr Asp Val Lys Asp Ala	
293 298 303 308	
att ggg ata agt tta tta aag aaa agt ggt att gag gtg agg cta atc	1076
Ile Gly Ile Ser Leu Leu Lys Lys Ser Gly Ile Glu Val Arg Leu Ile	
309 314 319 324	
tca gaa agg gcc tgt tca aag cag acg ctg tct tct tta aaa ctg gat	1124
Ser Glu Arg Ala Cys Ser Lys Gln Thr Leu Ser Ser Leu Lys Leu Asp	
325 330 335 340	
tgc aaa atg gaa gtc agt gta tca gac aag cta gca gtt gta gat gaa	1172
Cys Lys Met Glu Val Ser Val Ser Asp Lys Leu Ala Val Val Asp Glu	
341 346 351 356	
tgg aga aaa gaa atg ggc ctg tgc tgg aaa gaa gtg gca tat ctt gga	1220
Trp Arg Lys Glu Met Gly Leu Cys Trp Lys Glu Val Ala Tyr Leu Gly	
357 362 367 372	
aat gaa gtg tct gat gaa gag tgc ttg aag aga gtg ggc cta agt ggc	1268
Asn Glu Val Ser Asp Glu Glu Cys Leu Lys Arg Val Gly Leu Ser Gly	
373 378 383 388	
gct cct gct gat gcc tgt tct act gcc cag aag gct gtt gga tac att	1316
Ala Pro Ala Asp Ala Cys Ser Thr Ala Gln Lys Ala Val Gly Tyr Ile	
389 394 399 404	
tgc aaa tgt aat ggt ggc cgt ggt gcc atc cga gaa ttt gca gag cac	1364
Cys Lys Cys Asn Gly Gly Arg Gly Ala Ile Arg Glu Phe Ala Glu His	
405 410 415 420	
att tgc cta cta atg gaa aag gtt aat aat tca tgc caa aaa tag aaa	1412
Ile Cys Leu Leu Met Glu Lys Val Asn Asn Ser Cys Gln Lys *	
421 426 431	
ttagcgtaat attgagaaaa aaatgataca gcctttcttca gccagtttgc ttttattttt	1472
gattaagtaa attccatggt gtaatgttac agagagtgtg atttggtttg tgatatatat	1532
atattgtgct ctacttttct ctttacgcaa gataattatt tagagactga ttacagtctt	1592
tctcagattt ttagtaaatg caagtaagaa catcatcaaa gttcactttg tattgtaccc	1652
tgtaaaactg tgtgttttgtg tgctttcaaa gatgttgga ttttatttat ctggggacag	1712
tgtgtatggt aagacatgcc cttctattaa taaaactaca tttctcaaaa aaaaaaaaa	1770

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<212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (18)..(1208)

<400> 361

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	1 5	
ctc tcg agg atc cga att cgc ggc cgc gtc gac gcc ggg aac tgg cgt		98
Leu Ser Arg Ile Arg Ile Arg Gly Arg Val Asp Ala Gly Asn Trp Arg		
12 17 22 27		
gtg gga ctc cag aca gga gag gct gcg cct tcc ccg cac cgg gac ctt		146
Val Gly Leu Gln Thr Gly Glu Ala Ala Pro Ser Pro His Arg Asp Leu		
28 33 38 43		
cgc gac aca cca gat cct cgc ccc tgg ctc gcg cga acg cac agg atg		194
Arg Asp Thr Pro Asp Pro Arg Pro Trp Leu Ala Arg Thr His Arg Met		
44 49 54 59		
acc acc acc ctc gtg tct gcc acc atc ttc gac ttg agc gaa gtt tta		242
Thr Thr Thr Leu Val Ser Ala Thr Ile Phe Asp Leu Ser Glu Val Leu		
60 65 70 75		
tgc aag ggt aac aag atg ctc aac tat agt gct ccc agt gca ggg ggt		290
Cys Lys Gly Asn Lys Met Leu Asn Tyr Ser Ala Pro Ser Ala Gly Gly		
76 81 86 91		
tgc ctg ctg gac aga aag gca gtg ggc acc cct gct ggt ggg ggc ttc		338
Cys Leu Leu Asp Arg Lys Ala Val Gly Thr Pro Ala Gly Gly Gly Phe		
92 97 102 107		
cct cgg agg cac tca gtc acc ctg ccc agc tcc aag ttc cac cag aac		386
Pro Arg Arg His Ser Val Thr Leu Pro Ser Ser Lys Phe His Gln Asn		
108 113 118 123		
cag ctc ctc agc agc ctc aag ggt gag cca gcc ccc gct ctg agc tcg		434
Gln Leu Leu Ser Ser Leu Lys Gly Glu Pro Ala Pro Ala Leu Ser Ser		
124 129 134 139		
cga gac agc cgc ttc cga gac cgc tcc ttc tcg gaa ggg ggc gag cgg		482
Arg Asp Ser Arg Phe Arg Asp Arg Ser Phe Ser Glu Gly Gly Glu Arg		
140 145 150 155		
ctg ctg ccc acc cag aag cag ccc ggg ggc ggc cag gtc aac tcc agc		530
Leu Leu Pro Thr Gln Lys Gln Pro Gly Gly Gly Gln Val Asn Ser Ser		
156 161 166 171		
cgc tac aag acg gag ctg tgc cgc ccc ttt gag gaa aac ggt gcc tgt		578
Arg Tyr Lys Thr Glu Leu Cys Arg Pro Phe Glu Glu Asn Gly Ala Cys		
172 177 182 187		
aag tac ggg gac aag tgc cag ttc gca cac ggc atc cac gag ctc cgc		626

Lys Tyr Gly Asp Lys Cys Gln Phe Ala His Gly Ile His Glu Leu Arg	
188 193 198 203	
agc ctg acc cgc cac ccc aag tac aag acg gag ctg tgc cgc acc ttc	674
Ser Leu Thr Arg His Pro Lys Tyr Lys Thr Glu Leu Cys Arg Thr Phe	
204 209 214 219	
cac acc atc ggc ttt tgc ccc tac ggg ccc cgc tgc cac ttc atc cac	722
His Thr Ile Gly Phe Cys Pro Tyr Gly Pro Arg Cys His Phe Ile His	
220 225 230 235	
aac gct gaa gag cgc cgt gcc ctg gcc ggg gcc cgg gac ctc tcc gct	770
Asn Ala Glu Glu Arg Arg Ala Leu Ala Gly Ala Arg Asp Leu Ser Ala	
236 241 246 251	
gac cgt ccc cgc ctc cag cat agc ttt agc ttt gct ggg ttt ccc agt	818
Asp Arg Pro Arg Leu Gln His Ser Phe Ser Phe Ala Gly Phe Pro Ser	
252 257 262 267	
gcc gct gcc acc gcc gct gcc acc ggg ctg ctg gac agc ccc acg tcc	866
Ala Ala Ala Thr Ala Ala Ala Thr Gly Leu Leu Asp Ser Pro Thr Ser	
268 273 278 283	
atc acc cca ccc cct att ctg agc gcc gat gac ctc ctg ggc tca cct	914
Ile Thr Pro Pro Pro Ile Leu Ser Ala Asp Asp Leu Leu Gly Ser Pro	
284 289 294 299	
acc ctg ccc gat ggc acc aat aac cct ttt gcc ttc tcc agc cag gag	962
Thr Leu Pro Asp Gly Thr Asn Asn Pro Phe Ala Phe Ser Ser Gln Glu	
300 305 310 315	
ctg gca agc ctc ttt gcc cct agc atg ggg ctg ccc ggg ggt ggc tcc	1010
Leu Ala Ser Leu Phe Ala Pro Ser Met Gly Leu Pro Gly Gly Gly Ser	
316 321 326 331	
ccg acc acc ttc ctc ttc cgg ccc atg tcc gag tcc cct cac atg ttt	1058
Pro Thr Thr Phe Leu Phe Arg Pro Met Ser Glu Ser Pro His Met Phe	
332 337 342 347	
gac tct ccc ccc agc cct cag gat tct ctc tcg gac cag gag ggc tac	1106
Asp Ser Pro Pro Ser Pro Gln Asp Ser Leu Ser Asp Gln Glu Gly Tyr	
348 353 358 363	
ctg agc agc tcc agc agc agc cac agt ggc tca gac tcc ccg acc ttg	1154
Leu Ser Ser Ser Ser Ser Ser His Ser Gly Ser Asp Ser Pro Thr Leu	
364 369 374 379	
gac aac tca aga cgc ctg ccc atc ttc agc aga ctt tcc atc tca gat	1202
Asp Asn Ser Arg Arg Leu Pro Ile Phe Ser Arg Leu Ser Ile Ser Asp	
380 385 390 395	
gac taa gccagggtag ggagggacct cctggctcgac gcggccgcga attcggatcc	1258
Asp *	
396	
tcgagagatc tcttttttttg ggtttggtgg ggtatcttca tcatcgaata gatagccaac	1318

tcagaggaaa aaggtaagcc atgagcatag cgttcgagga gaggcagtga gtgatgtcgg 1378  
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<212> DNA  
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Pro Ile Gln Lys Ala Val Ile Asn His Thr Phe Gly Val Pro Leu Pro  
3 8 13 18  
cac cga aga aag caa atc ata tca tgc aac att tgc cag ttg aga ttt 151  
His Arg Arg Lys Gln Ile Ile Ser Cys Asn Ile Cys Gln Leu Arg Phe  
19 24 29 34  
aat tct gat agc cag gct gcg gcc cac tac aaa ggc acg aaa cat gcc 199  
Asn Ser Asp Ser Gln Ala Ala Ala His Tyr Lys Gly Thr Lys His Ala  
35 40 45 50  
aag aag ctc aaa gca ctg gaa gcc atg aaa aat aag cag aaa tct gta 247  
Lys Lys Leu Lys Ala Leu Glu Ala Met Lys Asn Lys Gln Lys Ser Val  
51 56 61 66  
act gcc aag gac agc gca aag act acc ttc acc tcc atc act acc aat 295  
Thr Ala Lys Asp Ser Ala Lys Thr Thr Phe Thr Ser Ile Thr Thr Asn  
67 72 77 82  
acc atc aat acc agc tct gac aaa aca gac ggt act gca ggg aca cca 343  
Thr Ile Asn Thr Ser Ser Asp Lys Thr Asp Gly Thr Ala Gly Thr Pro  
83 88 93 98  
gca ata tca acg acg aca act gtg gaa atc cgc aaa agc agt gtt atg 391  
Ala Ile Ser Thr Thr Thr Thr Val Glu Ile Arg Lys Ser Ser Val Met  
99 104 109 114  
aca act gag atc acc tct aaa gtg gaa aaa agc cca acg aca gcc act 439  
Thr Thr Glu Ile Thr Ser Lys Val Glu Lys Ser Pro Thr Thr Ala Thr  
115 120 125 130  
ggc aat agc tca tgt cct tct act gag acc gag gaa gaa aag gca aaa 487  
Gly Asn Ser Ser Cys Pro Ser Thr Glu Thr Glu Glu Glu Lys Ala Lys  
131 136 141 146

cgg ctt ctt tac tgt tcg cta tgc aag gtt gct gtc aac tct gcc tcg	535
Arg Leu Leu Tyr Cys Ser Leu Cys Lys Val Ala Val Asn Ser Ala Ser	
147 152 157 162	
cag ctg gag gcg cac aac agt ggt act aag cac aaa acc atg tta gaa	583
Gln Leu Glu Ala His Asn Ser Gly Thr Lys His Lys Thr Met Leu Glu	
163 168 173 178	
gcc cgg aat gga agt ggc act atc aaa gcc ttt cct agg gca gga gtg	631
Ala Arg Asn Gly Ser Gly Thr Ile Lys Ala Phe Pro Arg Ala Gly Val	
179 184 189 194	
aaa ggc aaa gga cct gtt aat aaa gga aac aca ggc ctc caa aat aaa	679
Lys Gly Lys Gly Pro Val Asn Lys Gly Asn Thr Gly Leu Gln Asn Lys	
195 200 205 210	
aca ttt cac tgt gaa atc tgt gat gtg cac gtc aac tcg gaa acg caa	727
Thr Phe His Cys Glu Ile Cys Asp Val His Val Asn Ser Glu Thr Gln	
211 216 221 226	
ctt aaa cag cac att agc agt aga agg cac aaa gac aga gct gct ggg	775
Leu Lys Gln His Ile Ser Ser Arg Arg His Lys Asp Arg Ala Ala Gly	
227 232 237 242	
aag ccc ccg aaa cct aaa tac agt cct tac aac aaa cta cag aag aca	823
Lys Pro Pro Lys Pro Lys Tyr Ser Pro Tyr Asn Lys Leu Gln Lys Thr	
243 248 253 258	
gca cat cca ctg ggg gta aaa tta gta ttt tca aaa gaa cct tca aag	871
Ala His Pro Leu Gly Val Lys Leu Val Phe Ser Lys Glu Pro Ser Lys	
259 264 269 274	
cca ttg gct cca cga att cta cca aat cct cta gca gct gca gca gcc	919
Pro Leu Ala Pro Arg Ile Leu Pro Asn Pro Leu Ala Ala Ala Ala Ala	
275 280 285 290	
gca gca gca gtg gca gtg agt tcc ccc ttc agt ctt cga act gct cca	967
Ala Ala Ala Val Ala Val Ser Ser Pro Phe Ser Leu Arg Thr Ala Pro	
291 296 301 306	
gca gca aca ctg ttc cag act tct gcg ctt cct ccg gca ctc ctg cgg	1015
Ala Ala Thr Leu Phe Gln Thr Ser Ala Leu Pro Pro Ala Leu Leu Arg	
307 312 317 322	
cca gct ccc gga ccc att cgg acc gcc cac act cct gtg ctg ttt gct	1063
Pro Ala Pro Gly Pro Ile Arg Thr Ala His Thr Pro Val Leu Phe Ala	
323 328 333 338	
cct tac taa attccaa ataggagtaa ttgtactgca ataatttttc aaaaaacaaa	1119
Pro Tyr *	
339	
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                   Met Arg Ser Ala Lys Ser Ala Ser Ser Ser Glu Glu Leu  
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 atc aac aaa ctt aac ttt ttg gat gaa gca gaa aag gac ttg gcc acc 158  
 Ile Asn Lys Leu Asn Phe Leu Asp Glu Ala Glu Lys Asp Leu Ala Thr  
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 gtg aat tca aat cca ttt gat gat cct gat gct gca gaa tta aat cca 206  
 Val Asn Ser Asn Pro Phe Asp Asp Pro Asp Ala Ala Glu Leu Asn Pro  
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 Phe Gly Asp Pro Asp Ser Glu Glu Pro Ile Thr Glu Thr Ala Ser Pro  
   46                  51                  56                  61  
 aga aaa aca gaa gac tct ttt tat aat aac agc tat aat ccc ttt aaa 302  
 Arg Lys Thr Glu Asp Ser Phe Tyr Asn Asn Ser Tyr Asn Pro Phe Lys  
   62                  67                  72                  77  
 gag gtg cag act cca cag tat ttg aac cca ttc gat gag cca gaa gca 350  
 Glu Val Gln Thr Pro Gln Tyr Leu Asn Pro Phe Asp Glu Pro Glu Ala  
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 ttt gtg acc ata aag gat tct cct ccc cag tct aca aaa aga aaa aat 398  
 Phe Val Thr Ile Lys Asp Ser Pro Pro Gln Ser Thr Lys Arg Lys Asn  
   94                  99                  104                  109  
 ata aga cct gtg gat atg agc aag tac ctc tat gct gat agt tct aaa 446  
 Ile Arg Pro Val Asp Met Ser Lys Tyr Leu Tyr Ala Asp Ser Ser Lys  
  110                  115                  120                  125  
 act gaa gaa gaa gaa ttg gat gaa tca aat cct ttt tat gaa cct aaa 494



Thr	Glu	Glu	Glu	Glu	Leu	Asp	Glu	Ser	Asn	Pro	Phe	Tyr	Glu	Pro	Lys	
126					131					136					141	
tca	act	cct	cct	cca	aat	aat	ttg	gta	aat	cct	gtt	caa	gaa	cta	gaa	542
Ser	Thr	Pro	Pro	Pro	Asn	Asn	Leu	Val	Asn	Pro	Val	Gln	Glu	Leu	Glu	
142					147					152					157	
act	gaa	agg	cga	gtg	aaa	aga	aag	gcc	ccg	gct	cca	cca	gtc	ctc	tca	590
Thr	Glu	Arg	Arg	Val	Lys	Arg	Lys	Ala	Pro	Ala	Pro	Pro	Val	Leu	Ser	
158					163					168					173	
cca	aaa	aca	gga	gta	tta	aat	gaa	aac	aca	gtt	tct	gca	gga	aaa	gat	638
Pro	Lys	Thr	Gly	Val	Leu	Asn	Glu	Asn	Thr	Val	Ser	Ala	Gly	Lys	Asp	
174					179					184					189	
ctc	tct	act	tct	cct	aag	cca	agc	cct	ata	cca	agt	cct	gtt	ttg	ggg	686
Leu	Ser	Thr	Ser	Pro	Lys	Pro	Ser	Pro	Ile	Pro	Ser	Pro	Val	Leu	Gly	
190					195					200					205	
cga	aag	cca	aat	gct	agt	cag	tct	ttg	ctt	gta	tgg	tgt	aaa	gaa	gtt	734
Arg	Lys	Pro	Asn	Ala	Ser	Gln	Ser	Leu	Leu	Val	Trp	Cys	Lys	Glu	Val	
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aca	aag	aac	tac	cga	gga	gta	aaa	atc	acc	aat	ttt	act	aca	tcg	tggt	782
Thr	Lys	Asn	Tyr	Arg	Gly	Val	Lys	Ile	Thr	Asn	Phe	Thr	Thr	Ser	Trp	
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aga	aat	ggt	tta	tct	ttt	tgt	gca	ata	tta	cac	cac	ttt	aga	cca	gat	830
Arg	Asn	Gly	Leu	Ser	Phe	Cys	Ala	Ile	Leu	His	His	Phe	Arg	Pro	Asp	
238					243					248					253	
tta	att	gac	tac	aag	tct	ctg	aat	cct	caa	gat	att	aaa	gag	aac	aac	878
Leu	Ile	Asp	Tyr	Lys	Ser	Leu	Asn	Pro	Gln	Asp	Ile	Lys	Glu	Asn	Asn	
254					259					264					269	
aaa	aag	gca	tac	gat	gga	ttt	gcc	agc	ata	gga	att	tcc	cga	tta	ttg	926
Lys	Lys	Ala	Tyr	Asp	Gly	Phe	Ala	Ser	Ile	Gly	Ile	Ser	Arg	Leu	Leu	
270					275					280					285	
gaa	cct	tct	gat	atg	gta	tta	tta	gca	att	cct	gat	aaa	ctg	act	gtt	974
Glu	Pro	Ser	Asp	Met	Val	Leu	Leu	Ala	Ile	Pro	Asp	Lys	Leu	Thr	Val	
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atg	act	tat	ctc	tat	caa	ata	agg	gca	cat	ttc	agt	ggc	caa	gaa	cta	1022
Met	Thr	Tyr	Leu	Tyr	Gln	Ile	Arg	Ala	His	Phe	Ser	Gly	Gln	Glu	Leu	
302					307					312					317	
aat	gtc	gtt	cag	ata	gag	gaa	aac	agc	agt	aaa	agc	aca	tat	aaa	gtt	1070
Asn	Val	Val	Gln	Ile	Glu	Glu	Asn	Ser	Ser	Lys	Ser	Thr	Tyr	Lys	Val	
318					323					328					333	
gga	aac	tat	gaa	aca	gat	aca	aac	agt	tct	gtt	gat	caa	gaa	aaa	ttc	1118
Gly	Asn	Tyr	Glu	Thr	Asp	Thr	Asn	Ser	Ser	Val	Asp	Gln	Glu	Lys	Phe	
334					339					344					349	
tat	gca	gag	ctt	agt	gat	ctg	aag	cgg	gag	cct	gaa	cta	caa	cag	cct	1166
Tyr	Ala	Glu	Leu	Ser	Asp	Leu	Lys	Arg	Glu	Pro	Glu	Leu	Gln	Gln	Pro	

350	355	360	365	
atc agc gga gca gta	gac ttc tta tca cag	gat gac tct gta ttt gta		1214
Ile Ser Gly Ala Val	Asp Phe Leu Ser Gln	Asp Asp Ser Val Phe Val		
366	371	376	381	
aat gat agc ggg gtt	gga gag tca gaa agt	gag cat caa act cct gat		1262
Asn Asp Ser Gly Val	Gly Glu Ser Glu Ser	Glu His Gln Thr Pro Asp		
382	387	392	397	
gat cac ctt agt cca	agc aca gcc tcc cct	tac tgt cgc agg act aaa		1310
Asp His Leu Ser Pro	Ser Thr Ala Ser Pro	Tyr Cys Arg Arg Thr Lys		
398	403	408	413	
agt gac aca gaa ccc	cag aag tct cag cag	agc tct gga agg act tca		1358
Ser Asp Thr Glu Pro	Gln Lys Ser Gln Gln	Ser Ser Gly Arg Thr Ser		
414	419	424	429	
gga tct gat gac cct	gga ata tgt tcc aat	aca gat tca acc caa gca		1406
Gly Ser Asp Asp Pro	Gly Ile Cys Ser Asn	Thr Asp Ser Thr Gln Ala		
430	435	440	445	
cag gtt ttg tta ggc	aaa aag aga cta ttg	aaa gct gag act tta gaa		1454
Gln Val Leu Leu Gly	Lys Lys Arg Leu Leu	Lys Ala Glu Thr Leu Glu		
446	451	456	461	
ttg agt gac tta tat	gtt agt gat aag aag	aag gat atg tct cca ccc		1502
Leu Ser Asp Leu Tyr	Val Ser Asp Lys Lys	Lys Asp Met Ser Pro Pro		
462	467	472	477	
ttt att tgt gag gag	aca gat gaa caa aag	ctt caa act cta gac atc		1550
Phe Ile Cys Glu Glu	Thr Asp Glu Gln Lys	Leu Gln Thr Leu Asp Ile		
478	483	488	493	
ggt agt aac ttg gag	aaa gaa aaa tta gag	aat tcc aga tcc tta gaa		1598
Gly Ser Asn Leu Glu	Lys Glu Lys Leu Glu	Asn Ser Arg Ser Leu Glu		
494	499	504	509	
tgc aga tca gat cca	gaa tct cct atc aaa	caa aca agt tta tct cct		1646
Cys Arg Ser Asp Pro	Glu Ser Pro Ile Lys	Gln Thr Ser Leu Ser Pro		
510	515	520	525	
act tct aaa ctt gga	tac tca tat agt aga	gat cta gac ctt gct aag		1694
Thr Ser Lys Leu Gly	Tyr Ser Tyr Ser Arg	Asp Leu Asp Leu Ala Lys		
526	531	536	541	
aaa aaa cat gct tcc	ctg agg cag acg gag	tct gat cca gat gct gat		1742
Lys Lys His Ala Ser	Leu Arg Gln Thr Glu	Ser Asp Pro Asp Ala Asp		
542	547	552	557	
aga acc act tta aat	cat gca gat cat tca	tca aaa ata gtc cag cat		1790
Arg Thr Thr Leu Asn	His Ala Asp His Ser	Ser Lys Ile Val Gln His		
558	563	568	573	
cga ttg tta tct aga	caa gaa gaa ctt aag	gaa aga gca aga gtt ctg		1838
Arg Leu Leu Ser Arg	Gln Glu Glu Leu Lys	Glu Arg Ala Arg Val Leu		
574	579	584	589	

ctt gag caa gca aga aga gat gca gcc tta aag gcg ggg aat aag cac	1886
Leu Glu Gln Ala Arg Arg Asp Ala Ala Leu Lys Ala Gly Asn Lys His	
590 595 600 605	
aat acc aac aca gcc acc cca ttc tgc aac agg cag cta agt gat cag	1934
Asn Thr Asn Thr Ala Thr Pro Phe Cys Asn Arg Gln Leu Ser Asp Gln	
606 611 616 621	
caa gat gaa gag cga cgt cgg cag ctg aga gag aga gct cgt cag cta	1982
Gln Asp Glu Glu Arg Arg Arg Gln Leu Arg Glu Arg Ala Arg Gln Leu	
622 627 632 637	
ata gca gaa gct cga tct gga gtg aag atg tca gaa <sup>1</sup> ctt ccc agc tat	2030
Ile Ala Glu Ala Arg Ser Gly Val Lys Met Ser Glu Leu Pro Ser Tyr	
638 643 648 653	
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Gly Glu Met Ala Ala Glu Lys Leu Lys Glu Arg Ser Lys Ala Ser Gly	
654 659 664 669	
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Asp Glu Asn Asp Asn Ile Glu Ile Asp Thr Asn Glu Glu Ile Pro Glu	
670 675 680 685	
ggc ttt gtt gta gga ggt gga gat gaa ctt act aac tta gaa aat gac	2174
Gly Phe Val Val Gly Gly Gly Asp Glu Leu Thr Asn Leu Glu Asn Asp	
686 691 696 701	
ctt gat act ccc gaa caa aac agt aag ttg gtg gac ttg aag ctg aag	2222
Leu Asp Thr Pro Glu Gln Asn Ser Lys Leu Val Asp Leu Lys Leu Lys	
702 707 712 717	
aag ctc cta gaa gtt cag cca cag gtg gca aat tca ccc tcc agt gct	2270
Lys Leu Leu Glu Val Gln Pro Gln Val Ala Asn Ser Pro Ser Ser Ala	
718 723 728 733	
gcc cag aaa gct gta act gag agc tca gag cag gac atg aaa agt ggc	2318
Ala Gln Lys Ala Val Thr Glu Ser Ser Glu Gln Asp Met Lys Ser Gly	
734 739 744 749	
aca gaa gat ctc cgg act gaa cga tta caa aaa aca aca gaa cgt ttt	2366
Thr Glu Asp Leu Arg Thr Glu Arg Leu Gln Lys Thr Thr Glu Arg Phe	
750 755 760 765	
aga aat cct gtt gtg ttc agc aaa gat tct aca gtc aga aaa act caa	2414
Arg Asn Pro Val Val Phe Ser Lys Asp Ser Thr Val Arg Lys Thr Gln	
766 771 776 781	
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Leu Gln Ser Phe Ser Gln Tyr Ile Glu Asn Arg Pro Glu Met Lys Arg	
782 787 792 797	
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Gln Arg Ser Ile Gln Glu Asp Thr Lys Lys Gly Asn Glu Glu Lys Ala	
798 803 808 813	

gcg ata act gaa act cag agg aag cca tca gaa gat gaa gtg ctt aat	2558
Ala Ile Thr Glu Thr Gln Arg Lys Pro Ser Glu Asp Glu Val Leu Asn	
814 819 824 829	

aaa ggg ttc aaa gac acc agt cag tat gta gta gga gaa ttg gca gca	2606
Lys Gly Phe Lys Asp Thr Ser Gln Tyr Val Val Gly Glu Leu Ala Ala	
830 835 840 845	

cta gag aat gag caa aag caa att gac acc cgt gcc gcg ctg gtg gag	2654
Leu Glu Asn Glu Gln Lys Gln Ile Asp Thr Arg Ala Ala Leu Val Glu	
846 851 856 861	

aag cgc ctt cgc tat ctc atg gac aca gga agg aac, aca gaa gaa gaa	2702
Lys Arg Leu Arg Tyr Leu Met Asp Thr Gly Arg Asn <sup>3</sup> Thr Glu Glu Glu	
862 867 872 877	

gaa gct atg atg cag gaa tgg ttt atg tta gtt aat aag aaa aat gcc	2750
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878 883 888 893	

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Leu Ile Arg Arg Met Asn Gln Leu Ser Leu Leu Glu Lys Glu His Asp	
894 899 904 909	

tta gaa cga cgg tat gag ctg ctg aac cgg gaa ttg agg gca atg cta	2846
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910 915 920 925	

gcc att gaa gac tgg cag aag acc gag gcc cag aag cga cgc gaa cag	2894
Ala Ile Glu Asp Trp Gln Lys Thr Glu Ala Gln Lys Arg Arg Glu Gln	
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Leu Leu Leu Asp Glu Leu Val Ala Leu Val Asn Lys Arg Asp Ala Leu	
942 947 952 957	

gtc agg gac ctg gac gcg cag gag aag cag gcc gaa gaa gaa gat gag	2990
Val Arg Asp Leu Asp Ala Gln Glu Lys Gln Ala Glu Glu Glu Asp Glu	
958 963 968 973	

cat ttg gag cga act ctg gag caa aac aaa ggc aag atg gcc aag aaa	3038
His Leu Glu Arg Thr Leu Glu Gln Asn Lys Gly Lys Met Ala Lys Lys	
974 979 984 989	

gag gag aaa tgt gtt ctt cag tag ccatcagatc agaaagaatc tctcccaaca	3092
Glu Glu Lys Cys Val Leu Gln *	
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tgagttaaca atttccttga aatcctgtga aatagatttg cacagacacc ttgtgagtga	3332
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Pro Ser Val Ser Gly Leu Ser Gln Ile Thr Lys Ser Leu Tyr Ile Ser	
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Asn Gly Val Ala Ala Asn Asn Lys Leu Met Leu Ser Ser Asn Gln Ile	
31 36 41 46	
acc atg gtc atc aat gtc tca gtg gag gta gtg aac acc ttg tat gag	672
Thr Met Val Ile Asn Val Ser Val Glu Val Val Asn Thr Leu Tyr Glu	
47 52 57 62	
gat atc cag tac atg cag gta cct gtg gct gac tcc <sup>3</sup> cct aac tca cgt	720
Asp Ile Gln Tyr Met Gln Val Pro Val Ala Asp Ser Pro Asn Ser Arg	
63 68 73 78	
ctc tgt gac ttc ttt gac cct att gct gac cat atc cac agc gtg gag	768
Leu Cys Asp Phe Phe Asp Pro Ile Ala Asp His Ile His Ser Val Glu	
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Met Lys Gln Gly Arg Thr Leu Leu His Cys Ala Ala Gly Val Ser Arg	
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Ser Ala Ala Leu Cys Leu Ala Tyr Leu Met Lys Tyr His Ala Met Ser	
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Leu Leu Asp Ala His Thr Trp Thr Lys Ser Cys Arg Pro Ile Ile Arg	
127 132 137 142	
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Pro Asn Ser Gly Phe Trp Glu Gln Leu Ile His Tyr Glu Phe Gln Leu	
143 148 153 158	
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Phe Gly Lys Asn Thr Val His Met Val Ser Ser Pro Val Gly Met Ile	
159 164 169 174	
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Pro Asp Ile Tyr Glu Lys Glu Val Arg Leu Met Ile Pro Leu *	
175 180 185	
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 17 22 27 32

gtg aaa gga gtt ctt cca tat tgg cca aga att ttt tgc aaa att tca 144  
 Val Lys Gly Val Leu Pro Tyr Trp Pro Arg Ile Phe Cys Lys Ile Ser  
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 49 54 59 64

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 Lys Leu Thr Leu Lys Val Lys Lys Gln Leu Ala Pro Tyr Leu Lys Ser  
 65 70 75 80

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 Leu Met Gly Tyr Trp Leu Met Ala Gln Cys Asp Thr Tyr Thr Pro Ala  
 81 86 91 96

gcg ttt gca gca aaa gat gca ttt gaa gcg gct ttt cct cca agc aag 336  
 Ala Phe Ala Ala Lys Asp Ala Phe Glu Ala Ala Phe Pro Pro Ser Lys  
 97 102 107 112

caa cct gaa gcc ata gca ttt tgt aag gat gaa att aca agt gtg ctg 384  
 Gln Pro Glu Ala Ile Ala Phe Cys Lys Asp Glu Ile Thr Ser Val Leu  
 113 118 123 128

cag gat cat ctt ata aaa gaa aca cct gat aca ctc agt gac ccg caa 432  
 Gln Asp His Leu Ile Lys Glu Thr Pro Asp Thr Leu Ser Asp Pro Gln  
 129 134 139 144

act gtt cca gag gaa gaa aga gaa gct aaa ttc tac cgg gtt gta act 480  
 Thr Val Pro Glu Glu Glu Arg Glu Ala Lys Phe Tyr Arg Val Val Thr  
 145 150 155 160

tgt tcc tta ttg gca tta aag aga tta ctt tgc ctt tta cct gat aat 528  
 Cys Ser Leu Leu Ala Leu Lys Arg Leu Leu Cys Leu Leu Pro Asp Asn  
 161 166 171 176

gag ctt gat tct ctg gag gag aaa ttt aag tct ctt tta tca cag aat	576
Glu Leu Asp Ser Leu Glu Glu Lys Phe Lys Ser Leu Leu Ser Gln Asn	
177 182 187 192	
aag ttt tgg aag tat gga aaa cac agt gta cct cag att cgc tca gct	624
Lys Phe Trp Lys Tyr Gly Lys His Ser Val Pro Gln Ile Arg Ser Ala	
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Tyr Phe Glu Leu Val Ser Ala Leu Cys Gln Arg Ile Pro Gln Leu Met	
209 214 219 224	
aaa gag gaa gca tcc aaa gtg agc cca tca gtt cta ctt agc att gat	720
Lys Glu Glu Ala Ser Lys Val Ser Pro Ser Val Leu Leu Ser Ile Asp	
225 230 235 240	
gac agt gac cca att gtc tgc cca gct ctc tgg gaa gct gta ctc tat	768
Asp Ser Asp Pro Ile Val Cys Pro Ala Leu Trp Glu Ala Val Leu Tyr	
241 246 251 256	
aca ctt aca act att gag gac tgt tgg ctt cat gta aat gca aaa aag	816
Thr Leu Thr Thr Ile Glu Asp Cys Trp Leu His Val Asn Ala Lys Lys	
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Ser Val Phe Pro Lys Leu Ser Thr Val Ile Arg Glu Gly Gly Arg Gly	
273 278 283 288	
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Leu Ala Thr Val Ile Tyr Pro Tyr Leu Leu Pro Phe Ile Ser Lys Leu	
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cct cat tcc atc aca aat cca aag ttg gat ttc ttc aaa aat ttc ctc	960
Pro His Ser Ile Thr Asn Pro Lys Leu Asp Phe Phe Lys Asn Phe Leu	
305 310 315 320	
acg tct cta gtt gct ggg ctg tca aca gag aga act aaa acc agc tct	1008
Thr Ser Leu Val Ala Gly Leu Ser Thr Glu Arg Thr Lys Thr Ser Ser	
321 326 331 336	
tca gag tcc tcg gca gta ata tct gct ttt tat gaa tgc tta cgt ttt	1056
Ser Glu Ser Ser Ala Val Ile Ser Ala Phe Tyr Glu Cys Leu Arg Phe	
337 342 347 352	
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Ile Met Gln Gln Asn Leu Gly Glu Glu Glu Ile Glu Gln Met Leu Val	
353 358 363 368	
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Asn Asp Gln Leu Ile Pro Phe Ile Asp Ala Val Leu Lys Asp Pro Gly	
369 374 379 384	
ttg caa cat ggg cag cta ttt aac cat tta gca gaa act cta agt tcc	1200
Leu Gln His Gly Gln Leu Phe Asn His Leu Ala Glu Thr Leu Ser Ser	
385 390 395 400	
tgg gaa gcc aaa gca gac acg gaa aaa gat gaa aaa aca gct cac aac	1248



Trp	Glu	Ala	Lys	Ala	Asp	Thr	Glu	Lys	Asp	Glu	Lys	Thr	Ala	His	Asn	
401					406					411					416	
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gtt	gcg	aaa	atc	agt	gag	cca	gaa	gct	gat	gtt	gag	tcc	gtt	ttg	ggg	1344
Val	Ala	Lys	Ile	Ser	Glu	Pro	Glu	Ala	Asp	Val	Glu	Ser	Val	Leu	Gly	
433					438					443					448	
gta	tct	aac	cta	tta	cag	gtg	ctt	cag	aag	ccg	aag	agc	tca	ttg	aag	1392
Val	Ser	Asn	Leu	Leu	Gln	Val	Leu	Gln	Lys	Pro	Lys	Ser	Ser	Leu	Lys	
449					454					459					464	
tca	agt	aaa	aaa	aaa	aat	ggg	aag	gtt	aga	ttt	gct	gat	gag	ata	ctt	1440
Ser	Ser	Lys	Lys	Lys	Asn	Gly	Lys	Val	Arg	Phe	Ala	Asp	Glu	Ile	Leu	
465					470					475					480	
gaa	agc	aat	aaa	gag	aat	gaa	aaa	tgt	gta	tct	tca	gaa	gga	gag	aag	1488
Glu	Ser	Asn	Lys	Glu	Asn	Glu	Lys	Cys	Val	Ser	Ser	Glu	Gly	Glu	Lys	
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att	gaa	ggc	tgg	gaa	tta	aca	act	gaa	cct	tct	ctc	act	cat	aat	tct	1536
Ile	Glu	Gly	Trp	Glu	Leu	Thr	Thr	Glu	Pro	Ser	Leu	Thr	His	Asn	Ser	
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tca	ggc	ctt	ttg	tct	cct	cta	agg	aaa	aaa	cct	ttg	gaa	gac	tta	gtc	1584
Ser	Gly	Leu	Leu	Ser	Pro	Leu	Arg	Lys	Lys	Pro	Leu	Glu	Asp	Leu	Val	
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tgt	aaa	ctc	gca	gat	ata	agt	att	aat	tat	gtc	aat	gaa	cga	aag	tca	1632
Cys	Lys	Leu	Ala	Asp	Ile	Ser	Ile	Asn	Tyr	Val	Asn	Glu	Arg	Lys	Ser	
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Glu	Gln	His	Leu	Arg	Phe	Leu	Ser	Thr	Leu	Leu	Asp	Ser	Phe	Ser	Ser	
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Gln	Ala	Lys	Pro	Leu	Glu	Ile	Ala	Lys	Leu	Val	Gln	Lys	Asn	Pro	Ala	
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Arg	Lys	Asp	Phe	Gly	Phe	Leu	Val	Asp	Ile	Leu	Tyr	Ser	Ala	Leu	Arg	
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tgc	tgt	gac	aat	gat	atg	gaa	aga	aaa	aaa	gtc	ttg	gat	gat	cta	acc	1920
Cys	Cys	Asp	Asn	Asp	Met	Glu	Arg	Lys	Lys	Val	Leu	Asp	Asp	Leu	Thr	

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aag gtg gac ttg aaa	tgg aat tct ctt ctt	aag att att gaa aag	gca	1968
Lys Val Asp Leu Lys	Trp Asn Ser Leu Leu	Lys Ile Ile Glu Lys	Ala	
641	646	651	656	
tgt cct agt tca gat	aaa cat gct tta gta	act cct tgg ctc aaa	ggc	2016
Cys Pro Ser Ser Asp	Lys His Ala Leu Val	Thr Pro Trp Leu Lys	Gly	
657	662	667	672	
gat atc ctt ggt gag	aaa ttg gtc aac ttg	gca gat tgt ctt tgt	aat	2064
Asp Ile Leu Gly Glu	Lys Leu Val Asn Leu	Ala Asp Cys Leu Cys	Asn	
673	678	683	688	
gag gac ttg gaa tcc	agg gta tct tca gaa	tct cac ttc tca gaa	aga	2112
Glu Asp Leu Glu Ser	Arg Val Ser Ser Glu	Ser His Phe Ser Glu	Arg	
689	694	699	704	
tgg act ctt cta agc	ttg gta tta tcc caa	cat gtt aaa aat gat	tac	2160
Trp Thr Leu Leu Ser	Leu Val Leu Ser Gln	His Val Lys Asn Asp	Tyr	
705	710	715	720	
ttg att gga gac gta	tat gtt gaa aga atc	att gtt aga ctt cat	gaa	2208
Leu Ile Gly Asp Val	Tyr Val Glu Arg Ile	Ile Val Arg Leu His	Glu	
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act tta ttc aaa aaa	aaa tta tca gaa gct	gaa agc agt gac tca		2256
Thr Leu Phe Lys Lys	Lys Lys Leu Ser Glu	Ala Glu Ser Ser Asp	Ser	
737	742	747	752	
tca gtg tct ttt atc	tgt gat gtg gcc tat	aac tat ttc agc tca	gcg	2304
Ser Val Ser Phe Ile	Cys Asp Val Ala Tyr	Asn Tyr Phe Ser Ser	Ala	
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aaa gga tgc ttg cta	atg cca tca tct gaa	gat tta tta tta act	ctc	2352
Lys Gly Cys Leu Leu	Met Pro Ser Ser Glu	Asp Leu Leu Leu Thr	Leu	
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ttt cag tta tgt gct	cag agc aaa gaa aaa	aca cat ttg cca gat	ttt	2400
Phe Gln Leu Cys Ala	Gln Ser Lys Glu Lys	Thr His Leu Pro Asp	Phe	
785	790	795	800	
ctt atc tgt aaa ctg	aaa aat act tgg ctc	tct ggt gta aat tta	ttg	2448
Leu Ile Cys Lys Leu	Lys Asn Thr Trp Leu	Ser Gly Val Asn Leu	Leu	
801	806	811	816	
gtt cat caa act gac	agt tca tat aaa gag	agt acc ttc cta cat	ttg	2496
Val His Gln Thr Asp	Ser Ser Tyr Lys Glu	Ser Thr Phe Leu His	Leu	
817	822	827	832	
tct gct ctg tgg ctg	aag aac caa gtt cag	gct tca tct ttg gat	atc	2544
Ser Ala Leu Trp Leu	Lys Asn Gln Val Gln	Ala Ser Ser Leu Asp	Ile	
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aac agt ctc caa gtc	ctc ttg tct gct gtt	gat gat ttg cta aat	aca	2592
Asn Ser Leu Gln Val	Leu Leu Ser Ala Val	Asp Asp Leu Leu Asn	Thr	
849	854	859	864	

ctt cta gag agt gaa gat tct tat ctt atg gga gtt tat att gga agt	2640
Leu Leu Glu Ser Glu Asp Ser Tyr Leu Met Gly Val Tyr Ile Gly Ser	
865 870 875 880	
gta atg ccg aac gac agt gaa tgg gaa aag atg agg cag tct ctt cct	2688
Val Met Pro Asn Asp Ser Glu Trp Glu Lys Met Arg Gln Ser Leu Pro	
881 886 891 896	
atg cag tgg tta cat aga cct ctt tta gag gga aga ttg agt ttg aat	2736
Met Gln Trp Leu His Arg Pro Leu Leu Glu Gly Arg Leu Ser Leu Asn	
897 902 907 912	
tat gaa tgt ttc aaa aca gat ttt aag gaa cag gac <sup>3</sup> ata aag aca ctt	2784
Tyr Glu Cys Phe Lys Thr Asp Phe Lys Glu Gln Asp Ile Lys Thr Leu	
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Pro Ser His Leu Cys Thr Ser Ala Leu Leu Ser Lys Met Val Leu Ile	
929 934 939 944	
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Ala Leu Arg Lys Glu Thr Val Leu Glu Asn Asn Glu Leu Glu Lys Ile	
945 950 955 960	
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Ile Ala Glu Leu Leu Tyr Ser Leu Gln Trp Cys Glu Glu Leu Asp Asn	
961 966 971 976	
cca cct att ttt cta att gga ttt tgt gaa ata ctt caa aaa atg aat	2976
Pro Pro Ile Phe Leu Ile Gly Phe Cys Glu Ile Leu Gln Lys Met Asn	
977 982 987 992	
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Gln Leu Leu Phe Asn Arg Ser Arg Glu His Gly Thr Leu Trp Ser Leu	
1009 1014 1019 1024	
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Lys Pro His Tyr Lys Arg Lys Glu Ser Phe Phe Pro Leu Thr Glu Gly	
1041 1046 1051 1056	
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Lys Lys Glu Phe Ser Ala Gln Cys Ile Pro Ala Leu Leu Gly Trp Thr	
1073 1078 1083 1088	



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Arg Pro Val Gln Ile Ala Val Tyr His Met Leu Tyr Lys Leu Met Pro	
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Glu Leu Pro Gln Tyr Asp Gln Asp Asn Leu Lys Ser Tyr Gly Asp Glu	
1345	1350 1355 1360
gaa gaa gag cca gcc ttg tca cca cca gca gca ctg atg tct ctt ctt	4128
Glu Glu Glu Pro Ala Leu Ser Pro Pro Ala Ala Leu Met Ser Leu Leu	
1361	1366 1371 1376
agc att caa gag gac tta cta gaa aat gtt ttg ggg tgt att cct gtt	4176
Ser Ile Gln Glu Asp Leu Leu Glu Asn Val Leu Gly Cys Ile Pro Val	
1377	1382 1387 1392
gga cag ata gtt act att aaa cca ctg agt gaa gac ttc tgt tat gtt	4224
Gly Gln Ile Val Thr Ile Lys Pro Leu Ser Glu Asp Phe Cys Tyr Val	
1393	1398 1403 1408
ctg gga tac ctt ctc act tgg aaa tta ata cta act ttc ttc aaa gct	4272
Leu Gly Tyr Leu Leu Thr Trp Lys Leu Ile Leu Thr Phe Phe Lys Ala	
1409	1414 1419 1424
gca tca tca cag ctt cgg gct ttg tat tcc atg tat ctt cgg aaa aca	4320
Ala Ser Ser Gln Leu Arg Ala Leu Tyr Ser Met Tyr Leu Arg Lys Thr	
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Lys Ser Leu Asn Lys Leu Leu Tyr His Leu Phe Arg Leu Met Pro Glu	
1441	1446 1451 1456
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Asn Pro Thr Tyr Ala Glu Thr Ala Val Glu Val Pro Asn Lys Asp Pro	
1457	1462 1467 1472
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Lys Thr Phe Phe Thr Glu Glu Leu Gln Leu Ser Ile Arg Glu Thr Thr	
1473	1478 1483 1488
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Met Leu Pro Tyr His Ile Pro His Leu Ala Cys Ser Val Tyr His Met	
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Thr Leu Lys Asp Leu Pro Ala Met Val Arg Leu Trp Trp Asn Ser Ser	
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Ala Leu Trp Lys Asn Asn Val Asp Lys Arg Phe Glu Gly Val Glu Asp				
1633	1638	1643	1648	
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Cys Met Ile Cys Phe Ser Val Ile His Gly Phe Asn Tyr Ser Leu Pro				
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 Glu Trp Gly Asp Ala Arg Gly His Arg Ala Ser Asp Leu Ser Ser Ala  
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Gly Gly Pro Pro Leu *				
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cgggaagatt ggctactacc tgggtgctggg ctgggtgctgc gtagccatct ttgtgttcat				1087
gatccggacg ctgcggtga agatcttggc agacgcagca gctgaggggg tcccgggtgcg				1147
tggggcccgg aaccagctgc gcatgtacct gacctggcg gtggcggcgg cgcagcctat				1207
gctcatgtac tggctcacct tccacctggg gcggtgagcg cgcccgctga acctcccgt				1267
gctgctgctg ctgctggggg ccactgtggc cgccgaactc atctcctgcc tgcaggcccc				1327
aaggtccacc ctgtctggcc acaggccacc gcctccatcc catgtcccgc ccagccccgc				1387
ccccaacca aggtgctgag agatctccag ctgcacaggc caccgccccca gggcgtggcc				1447
gctgttacag aaacaataaa ccctgatggg catggcaaaa aaaaaaaaaa				1497

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 <212> DNA  
 <213> Homo sapiens

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 <222> (375)..(599)

<220>  
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 <222> (1)...(973)  
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gtgtgtgggg aggggtgtata tggagaagga gcccgaagaa aggatcagaa cggagaccac	60
tgccacctga tgtttcctgc aggggctgca ctgtgtctct ggctgaggtc aactgacac	120
ctgggtggta ctggctactc gcagtcttaa atctagtagg gccgaaagta ctagaaggag	180

```

gttgtccaga gaggtctgcc ctcaaaatgc tcctgaaaga tgcttgctta tgcttttctt 240
taaaaattat ttctggggaa gggcggggag tggtcacagg atcttatatt ctctttattt 300
ttacttaatt tgcattgtat ttttagaact ccccttttta agggtcacat tttgcctcag 360
aaaaccctgt ctga atg tct cct gtt tgt cgg tca gga ctg act ctg cct 410
                Met Ser Pro Val Cys Arg Ser Gly Leu Thr Leu Pro
                1          5          10

ttt ctt tcc ttt tcc atg tgc cac tcc tgt cct ccc ttt gcc ctg cct 458
Phe Leu Ser Phe Ser Met Cys His Ser Cys Pro Pro Phe Ala Leu Pro
13          18          23          28

gat ttc tgc act gtc ctg tcc cac ctg tct gtc tcc tct tgg ttt tgc 506
Asp Phe Cys Thr Val Leu Ser His Leu Ser Val Ser Ser Trp Phe Cys
29          34          39          44

ccg tgt cag cct ccc ctt ccg tgc cct ctg ccc ccc ttg cag aac aag 554
Pro Cys Gln Pro Pro Leu Pro Cys Pro Leu Pro Pro Leu Gln Asn Lys
45          50          55          60

acc gcg aaa ggc agc ctg agc aca gag cag tgg gag cgg ggg tga ggg 602
Thr Ala Lys Gly Ser Leu Ser Thr Glu Gln Ser Glu Arg Gly *
61          66          71

gggcagtgtg ctgctgggaa tggaaaggac agcaagcaca ggtgagtcgg ggccaccggg 662
ctccctgcat cctgccccgg ctcccagcag gcgtcgttgc ctctgccctc ctgctcgtct 722
tatgctctgc caccagcatt tcattcctgtg gatgacaacg ccagggtggat gcagtgttct 782
tccattgggt acttagctcc ccagattatc tgtggaaagg agtgggggct tctaaactgt 842
ccactgccaa tggggtgcag ggtgactgtt cctgaaggca gcccttcagg gcacagctgg 902
ccaggggtgg ccttggtgagt ngacacaaca ggcttttagg tctctttctt gggcaagggc 962
atctcttgcc a 973

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<210> 368
<211> 839
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (61)..(429)

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atg tgg aat ttt acc ctt ata tca aag gta aag att tcc cgg gag gtg 108

```

Met	Trp	Asn	Phe	Thr	Leu	Ile	Ser	Lys	Val	Lys	Ile	Ser	Arg	Glu	Val	
1				5					10					15		
act atg att gcc agc aaa ttc ggt atc ggc cag cag gtc cgc cat tcc																156
Thr	Met	Ile	Ala	Ser	Lys	Phe	Gly	Ile	Gly	Gln	Gln	Val	Arg	His	Ser	
17					22					27				32		
ctg tta ggt tat ctc gga gtg gtc gtg gat atc gac ccg gtt tat tcg																204
Leu	Leu	Gly	Tyr	Leu	Gly	Val	Val	Val	Asp	Ile	Asp	Pro	Val	Tyr	Ser	
33					38					43				48		
ctc tct gaa ccg tcg cct gat gag ctg gcg gtg aat gac gag ctt cgc																252
Leu	Ser	Glu	Pro	Ser	Pro	Asp	Glu	Leu	Ala	Val	Asn	Asp	Glu	Leu	Arg	
49					54					59				64		
gcc gct ccg tgg tat cac gta gtg atg gag gac gat aac ggc cta ccg																300
Ala	Ala	Pro	Trp	Tyr	His	Val	Val	Met	Glu	Asp	Asp	Asn	Gly	Leu	Pro	
65					70					75				80		
gtt cat acc tac ctg gct gaa gcc cag cta agt agc gaa ttg cag gat																348
Val	His	Thr	Tyr	Leu	Ala	Glu	Ala	Gln	Leu	Ser	Ser	Glu	Leu	Gln	Asp	
81					86					91				96		
gaa cat cct gaa cag cca tcc atg gat gag ctg gcg cag acc atc cgc																396
Glu	His	Pro	Glu	Gln	Pro	Ser	Met	Asp	Glu	Leu	Ala	Gln	Thr	Ile	Arg	
97					102					107				112		
aaa caa ctc cag gcc ccg cgt ctg cgt aac taa tccctgaa caaatccccg																447
Lys	Gln	Leu	Gln	Ala	Pro	Arg	Leu	Arg	Asn	*						
113					118					123						
gaagggtttt gccttccggg gattttttat ttggccaggc ccaggcgagg gatctcaata																507
gccgggcagc gatccatcac cacatttaac ccggcatccc gtgccagtac tgccgcttgc																567
tcattaatca cccccagttg catccagaga gttttcgcgc caatggcaat agcttctgt																627
gccacgcccc acgccgcttc tgaattacgg aaaacatcga ccatatcgac tttttccgga																687
acgtctgcc a gcgtgccata ccccttcttg cccagcagcg ttttgccggc aacttttggc																747
gaaaccggaa tgacgtgata cccctggctg agtagatatt tcatcacgcg atagctggga																807
cgatcggggtt tgctgcttgc cccaccagc gc																839

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 <213> Homo sapiens  
 <220> /  
 <221> CDS /  
 <222> (296) .. (2413)

<400> 369

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aaaggaaca caggctggag ctcaaggatc cttaattaaa ttaatcccc ccccccccg 120

gggcgcgacc atctgcgctg cggcgccggc gactcagcgc tgcctcagtc tgcggtgggc 180

agcggaggag tcgtgtcgtg cctgagagcg cagctgtgct cctgggcacc gcgcagtcg 240

ccccgcggc tcctggccag accacccta ggacccctg cccaagtcg cagcc atg 298  
Met  
1

aac tac ctg cgg cgc cgc ctg tcg gac agc aac ttt atg gcc aat ctg 346  
Asn Tyr Leu Arg Arg Arg Leu Ser Asp Ser Asn Phe Met Ala Asn Leu  
2 7 12 17

cca aat ggg tac atg aca gac ctg cag cgt ccg cag ccg ccc cca ccg 394  
Pro Asn Gly Tyr Met Thr Asp Leu Gln Arg Pro Gln Pro Pro Pro Pro  
18 23 28 33

ccg ccc ggt gcc cac agc ccc gga gcc acg ccc ggt ccc ggg acc gcc 442  
Pro Pro Gly Ala His Ser Pro Gly Ala Thr Pro Gly Pro Gly Thr Ala  
34 39 44 49

act gcc gag agg tcc tcc ggg gtc gcc cca gcg gcc tct ccg gcc gcc 490  
Thr Ala Glu Arg Ser Ser Gly Val Ala Pro Ala Ala Ser Pro Ala Ala  
50 55 60 65

cct agc ccc ggg tcc tcg ggg ggc ggt ggc ttc ttc tcg tcg ctg tcc 538  
Pro Ser Pro Gly Ser Ser Gly Gly Gly Gly Phe Phe Ser Ser Leu Ser  
66 71 76 81

aac gcg gtc aag cag acc acg gcg gcg gca gct gcc acc ttc agc gag 586  
Asn Ala Val Lys Gln Thr Thr Ala Ala Ala Ala Ala Thr Phe Ser Glu  
82 87 92 97

cag gtg ggc ggc ggc tct ggg ggc gca ggc cgc ggg gga gcc gcc tcc 634  
Gln Val Gly Gly Gly Ser Gly Gly Ala Gly Arg Gly Gly Ala Ala Ser  
98 103 108 113

agg gtg ctg ctg gtc atc gac gag ccg cac acc gac tgg gca aaa tac 682  
Arg Val Leu Leu Val Ile Asp Glu Pro His Thr Asp Trp Ala Lys Tyr  
114 119 124 129

ttc aaa ggg aaa aag atc cat gga gaa att gac att aaa gta gaa cag 730  
Phe Lys Gly Lys Lys Ile His Gly Glu Ile Asp Ile Lys Val Glu Gln  
130 135 140 145

gcc gaa ttc tct gat ctc aac ctt gtg gcc cat gcc aat ggt gga ttc 778  
Ala Glu Phe Ser Asp Leu Asn Leu Val Ala His Ala Asn Gly Gly Phe  
146 151 156 161

tct gtg gat atg gaa gtt ctt cgg aat ggg gtg aag gtc gtg cgg tct 826  
Ser Val Asp Met Glu Val Leu Arg Asn Gly Val Lys Val Val Arg Ser  
162 167 172 177

ctg aag ccg gat ttt gtg ctg atc cgc cag cac gcc ttc agc atg gca	874
Leu Lys Pro Asp Phe Val Leu Ile Arg Gln His Ala Phe Ser Met Ala	
178 183 188 193	
cgc aac gga gac tac cgc agt ttg gtc att ggg ctg cag tat gct gga	922
Arg Asn Gly Asp Tyr Arg Ser Leu Val Ile Gly Leu Gln Tyr Ala Gly	
194 199 204 209	
atc ccc agt gtt aac tcc ttg cat tct gtc tac aac ttc tgt gac aag	970
Ile Pro Ser Val Asn Ser Leu His Ser Val Tyr Asn Phe Cys Asp Lys	
210 215 220 225	
ccc tgg gtg ttt gcc cag atg gtt cga ctg cat aag aaa ctg ggg aca	1018
Pro Trp Val Phe Ala Gln Met Val Arg Leu His Lys Lys Leu Gly Thr	
226 231 236 241	
gaa gaa ttc cct cta att gat cag acc ttc tac ccc aat cac aaa gaa	1066
Glu Glu Phe Pro Leu Ile Asp Gln Thr Phe Tyr Pro Asn His Lys Glu	
242 247 252 257	
atg ctc agc agt aca acg tac ccc gtg gtt gtg aag atg ggg cac gca	1114
Met Leu Ser Ser Thr Thr Tyr Pro Val Val Val Lys Met Gly His Ala	
258 263 268 273	
cac tct ggg atg ggc aag gtc aag gtt gac aac cag cat gac ttc cag	1162
His Ser Gly Met Gly Lys Val Lys Val Asp Asn Gln His Asp Phe Gln	
274 279 284 289	
gac atc gca agt gtc gtg gca ctg acc aag acg tat gcc act gcc gag	1210
Asp Ile Ala Ser Val Val Ala Leu Thr Lys Thr Tyr Ala Thr Ala Glu	
290 295 300 305	
ccc ttc atc gat gcc aaa tat gac gtg cgt gtc cag aag att ggg cag	1258
Pro Phe Ile Asp Ala Lys Tyr Asp Val Arg Val Gln Lys Ile Gly Gln	
306 311 316 321	
aac tac aag gcc tac atg agg acg tca gtg tca ggg aac tgg aag acc	1306
Asn Tyr Lys Ala Tyr Met Arg Thr Ser Val Ser Gly Asn Trp Lys Thr	
322 327 332 337	
aat act ggc tct gcg atg ctg gag caa att gcc atg tct gac aga tac	1354
Asn Thr Gly Ser Ala Met Leu Glu Gln Ile Ala Met Ser Asp Arg Tyr	
338 343 348 353	
aag ctg tgg gtg gac acg tgc tca gag att ttt ggg gga ctg gac atc	1402
Lys Leu Trp Val Asp Thr Cys Ser Glu Ile Phe Gly Gly Leu Asp Ile	
354 359 364 369	
tgc gca gtg gaa gcg cta cat ggc aag gac gga agg gat cac atc att	1450
Cys Ala Val Glu Ala Leu His Gly Lys Asp Gly Arg Asp His Ile Ile	
370 375 380 385	
gag gtg gtg ggt tcc tcc atg ccg ctc att ggt gac cac cag gat gaa	1498
Glu Val Val Gly Ser Ser Met Pro Leu Ile Gly Asp His Gln Asp Glu	
386 391 396 401	
gac aaa cag ctc atc gta gag ctc gtg gtc aac aag atg gct cag gcc	1546

Asp	Lys	Gln	Leu	Ile	Val	Glu	Leu	Val	Val	Asn	Lys	Met	Ala	Gln	Ala		
402					407					412					417		
ctg	ccc	cgg	cag	cga	cag	cgc	gat	gcc	tcc	cct	ggc	agg	ggc	tcc	cat	1594	
Leu	Pro	Arg	Gln	Arg	Gln	Arg	Asp	Ala	Ser	Pro	Gly	Arg	Gly	Ser	His		
418					423					428					433		
ggc	cag	act	ccg	tcc	cca	ggg	gcc	ctg	ccc	ttg	ggc	cgc	cag	acc	tcc	1642	
Gly	Gln	Thr	Pro	Ser	Pro	Gly	Ala	Leu	Pro	Leu	Gly	Arg	Gln	Thr	Ser		
434					439					444					449		
cag	cag	ccc	gca	ggg	ccc	ccg	gct	cag	cag	cga	ccc	cca	cca	cag	ggc	1690	
Gln	Gln	Pro	Ala	Gly	Pro	Pro	Ala	Gln	Gln	Arg	Pro	Pro	Pro	Gln	Gly		
450					455					460					465		
ggc	cct	cca	cag	ccg	ggt	cca	ggc	ccc	cag	cgc	cag	gga	ccc	cca	ttg	1738	
Gly	Pro	Pro	Gln	Pro	Gly	Pro	Gly	Pro	Gln	Arg	Gln	Gly	Pro	Pro	Leu		
466					471					476					481		
cag	cag	cgc	ccg	ccc	ccg	cag	ggc	cag	cag	cac	ctt	tca	ggc	ctt	gga	1786	
Gln	Gln	Arg	Pro	Pro	Pro	Gln	Gly	Gln	Gln	His	Leu	Ser	Gly	Leu	Gly		
482					487					492					497		
ccc	cca	gct	ggc	agc	ccc	ctg	ccc	cag	cgc	ctt	cca	agt	ccc	acc	tca	1834	
Pro	Pro	Ala	Gly	Ser	Pro	Leu	Pro	Gln	Arg	Leu	Pro	Ser	Pro	Thr	Ser		
498					503					508					513		
gcg	ccc	cag	cag	ccc	gcg	tcc	cag	gcc	gcg	ccg	ccg	acc	cag	ggt	caa	1882	
Ala	Pro	Gln	Gln	Pro	Ala	Ser	Gln	Ala	Ala	Pro	Pro	Thr	Gln	Gly	Gln		
514					519					524					529		
ggc	cgc	caa	tcc	cgg	cca	gtg	gcg	gga	ggc	ccc	ggg	gcg	cct	cca	gca	1930	
Gly	Arg	Gln	Ser	Arg	Pro	Val	Ala	Gly	Gly	Pro	Gly	Ala	Pro	Pro	Ala		
530					535					540					545		
gcc	cgc	ccg	ccc	gcc	tct	ccg	tct	ccc	cag	cgc	cag	gcg	ggc	ccc	cca	1978	
Ala	Arg	Pro	Pro	Ala	Ser	Pro	Ser	Pro	Gln	Arg	Gln	Ala	Gly	Pro	Pro		
546					551					556					561		
cag	gct	acc	cgt	cag	aca	tcc	gtc	tct	ggc	ccg	gct	ccg	cca	aag	gcc	2026	
Gln	Ala	Thr	Arg	Gln	Thr	Ser	Val	Ser	Gly	Pro	Ala	Pro	Pro	Lys	Ala		
562					567					572					577		
tct	ggg	gcc	cca	ccg	ggc	ggg	cag	cag	cgc	cag	ggc	ccg	ccc	cag	aaa	2074	
Ser	Gly	Ala	Pro	Pro	Gly	Gly	Gln	Gln	Arg	Gln	Gly	Pro	Pro	Gln	Lys		
578					583					588					593		
ccc	cca	ggc	cca	gcc	ggc	ccc	aca	cgc	cag	gcc	agc	cag	gcg	ggt	ccc	2122	
Pro	Pro	Gly	Pro	Ala	Gly	Pro	Thr	Arg	Gln	Ala	Ser	Gln	Ala	Gly	Pro		
594					599					604					609		
gtg	ccc	cgc	act	ggg	cca	ccc	acc	acg	cag	cag	cct	cgg	ccc	agc	ggc	2170	
Val	Pro	Arg	Thr	Gly	Pro	Pro	Thr	Thr	Gln	Gln	Pro	Arg	Pro	Ser	Gly		
610					615					620					625		
ccg	ggc	ccc	gct	gga	cgt	ccc	aaa	cca	cag	ctg	gcc	cag	aaa	ccc	agc	2218	
Pro	Gly	Pro	Ala	Gly	Arg	Pro	Lys	Pro	Gln	Leu	Ala	Gln	Lys	Pro	Ser		

626	631	636	641	
cag gac gtg ccg cca	ccc gcc acc gcc gct	gca ggg gga cct ccg cac		2266
Gln Asp Val Pro Pro	Pro Ala Thr Ala Ala	Ala Gly Gly Pro Pro His		
642	647	652	657	
ccc cag ctc aac aaa	tcc cag tct ctg acc	aat gcc ttc aac ctt cca		2314
Pro Gln Leu Asn Lys	Ser Gln Ser Leu Thr	Asn Ala Phe Asn Leu Pro		
658	663	668	673	
gag cca gcc ccg ccc	agg ccc agc ctt agc	cag gac gag gtg aaa gct		2362
Glu Pro Ala Pro Pro	Arg Pro Ser Leu Ser	Gln Asp Glu Val Lys Ala		
674	679	684	689	
gag acc atc cgc agc	ctg agg aag tct ttc	gcc agc ctc ttc tcc gac		2410
Glu Thr Ile Arg Ser	Leu Arg Lys Ser Phe	Ala Ser Leu Phe Ser Asp		
690	695	700	705	
tga tacc ccactctgag	aacccccaaaa	tccttgggca acccttctct	gggccctgaa	2467
*				
706				
tccattttctc acttttggag	tctccaaatc ccttgagaac	ccatctcccg gttctccaag		2527
attccacctc tcattcctca	agatccccga gtaccttgag	aaacctgact cctcctggcc		2587
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ttcaggatct actttctgttt	tagaacctcc acattcctga	agacctccgc ccctgggttc		2707
cccagagggc gttttccttc	ctggaagtgc ccaaatacca	ggcaacccat tgcagaatcc		2767
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acctattttcc catcataatt	ttccaaatcc tcaagaaacc	cctactgttg agccccttcc		2887
catggatctt ccacccctct	gaagatccac atcttcaaat	gccaccaaac acctagcccc		2947
acaaggattt cccttcacca	gctcccctca acctcattca	ataccttggg agcccctccc		3007
acttccagga cccctcgggt	ccccagggc cccctcccc	agtttctctgc ctctgacagc		3067
tgtctttaa tatgcaaact	ccacccatct tcccagaatc	ctttgcacac ggaaggccag		3127
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ttgtgccgtg cttggcatat	gtggtcctcg ttcacgtgc	cgctgtgggt gatgctgca		3247
gtgacgtgt ttatgtggtc	cgcacctccc cctgaccttc	actccttgcc tggactcacc		3307
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ggcccagcaa aaaaaaaaaa	a			3388

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 <211> 1136  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (353) .. (727)

<400> 370

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ggtgtgtggt ggccatccca tccctgtgta agacctgggg aaaccactct tcaaggttca      120
ggaggaggga gggcggcccc cgacccttaa ccagagcgag gttgttgctt tgtgtccaca      180
gggaccagga gcgaaccatg atgccaggta ggaggggctg actgggccct gcgagcgcgt      240
gcctttcctg ctgggcagag gccctccaca tggggccacg cggggccgggc acaggagggc      300
agtcagatgg gcagggcctg agagcctccc tcctctccct aggtccctaa tc      atg      355
                                     Met
                                     1

gac tcc cca aga gct ggc acc cac cag ggc ccc ctc gat gca gag aca      403
Asp Ser Pro Arg Ala Gly Thr His Gln Gly Pro Leu Asp Ala Glu Thr
   2               7               12               17

gag gtc ggt gct gac cgc tgc acg tcg act gcc tac cag gag cag agg      451
Glu Val Gly Ala Asp Arg Cys Thr Ser Thr Ala Tyr Gln Glu Gln Arg
   18               23               28               33

ccc cag gtg gag caa gtt ggc aaa cag gct cct ctc tcc cca ggg ctg      499
Pro Gln Val Glu Gln Val Gly Lys Gln Ala Pro Leu Ser Pro Gly Leu
   34               39               44               49

ccg gca atg ggg ggg cct ggc ccc ggc ccc tgt gag gac ccc gcg ggt      547
Pro Ala Met Gly Gly Pro Gly Pro Gly Pro Cys Glu Asp Pro Ala Gly
   50               55               60               65

gct ggg gga gca ggt gca ggg ggc tcc gag ccc ctg gtg act gtc acc      595
Ala Gly Gly Ala Gly Ala Gly Gly Ser Glu Pro Leu Val Thr Val Thr
   66               71               76               81

gtg cag tgc gcc ttc aca gtg gcc ctg agg gca cga aga gga gcc gac      643
Val Gln Cys Ala Phe Thr Val Ala Leu Arg Ala Arg Arg Gly Ala Asp
   82               87               92               97

ctg tcc agc ctg cgg gca ctg ctg ggc caa gcc cct ccc tca cca ggc      691
Leu Ser Ser Leu Arg Ala Leu Leu Gly Gln Ala Pro Pro Ser Pro Gly
   98               103              108              113

cca gct tgg gca act cag tta cct agc ccc agg tga ggac gggcactggg      741
Pro Ala Trp Ala Thr Gln Leu Pro Ser Pro Arg *
  114               119               124

tcccatccc cgaggaggag tcgctgcaga gggcctggca ggacgcagct gcctgcccc      801

```



```

gggggctgca gctgcagtgc aggggagccg ggggtcggcc ggtcctctac caggtggtgg      861
cccagcacag ctactccgcc caggggccag aggacctggg cttccgacag ggggacacgg      921
tggacgtcct gtgtgaagtg gaccaggcat ggctggaggg ccactgtgac ggccgcatcg      981
gcattctccc caagtgttc gtggtccccg ccggccctcg gatgtcagga gccccggcc      1041
gcctgccccg atcccagcag ggagatcagc cctaattgat ctgtgtccat gatgctttta      1101
ataaaaacaa cccccactgc aaaaaaaaaa aaaaaa                                1136

```

```

<210> 371
<211> 2575
<212> DNA
<213> Homo sapiens

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<220>
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```

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<220>
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<222> (1) ... (2575)
<223> n = a,t,c or g

```

```

<400> 371
taagcttgcg gccgccgccc gccaccgcg cgctcgcttg accgcggcgc ccgcccccg      60
ccgcccccg ccgtccccct gccgcgatgc cctcccttcg gggccccggc ggcccgcgcc      120
cctgctaggc tgcggcgga tggcccgcgc gcccggcgcg acctctgcgg attgcatcgg      180
tgtgtggcgg cggggcatgc ccagagcacc gggcacggcc ttca atg ggc gag gac      236
                               Met Gly Glu Asp
                               1

```

```

acg gac acg cgg aaa att aac cac agc ttc ctg cgg gac cac agc tat      284
Thr Asp Thr Arg Lys Ile Asn His Ser Phe Leu Arg Asp His Ser Tyr
  5              10              15              20

```

```

gtg act gaa gct gac atc atc tct acc gtt gag ttc aac cac acg gga      332
Val Thr Glu Ala Asp Ile Ile Ser Thr Val Glu Phe Asn His Thr Gly
  21              26              31              36

```

```

gag ctg ctg gcc aca ggt gac aag ggc ggc cgg gtc gtc atc ttc cag      380
Glu Leu Leu Ala Thr Gly Asp Lys Gly Gly Arg Val Val Ile Phe Gln
  37              42              47              52

```

```

cgg gaa cca gag agt aaa aat gcg ccc cac agc cag ggc gaa tac gac      428
Arg Glu Pro Glu Ser Lys Asn Ala Pro His Ser Gln Gly Glu Tyr Asp
  53              58              63              68

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Gln Asn Ala Ala His Ser Leu Leu Ser Thr Asn Asp Lys Thr Ile Lys	
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Gln Val Pro Val Leu Lys Pro Met Asp Leu Met Val Glu Val Ser Pro	
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Asn Leu Trp His Leu Ala Ile Thr Asp Arg Ser Phe Asn Ile Val Asp	
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Ile Lys Pro Ala Asn Met Glu Asp Leu Thr Glu Val Ile Thr Ala Ser	
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Asp Asn Ala Pro Ser Pro Ser Ile Gly Gly Ser Ser Arg Leu Glu Asn				
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Thr Thr Pro Thr Gln Pro Leu Thr Pro Leu His Val Val Thr Gln Asn				
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Arg Asp Glu Glu Pro Glu Ser Ile Glu Gly Lys Val Lys Asn Asp Ile				
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Cys Glu Glu Lys Lys Pro Glu Leu Ser Ser Ser Ser Gln Gln Pro Ser				
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Val Ile Gln Gln Arg Pro Asn Met Tyr Met Gln Ser Leu Tyr Tyr Asn				
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Thr His Leu Leu Ser Thr Asn Thr Ala Tyr Arg Gln Gln Tyr Glu Glu				
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tgccctcctg gggctcctgt gaggtggagc caagggtccc tctctgttcc tgtttgtctt 5092  
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tggcttttga cccctgggta ctctgggacc tgtttctctg aggccctggc ttgggacact	6952
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ccatgtctgc ttagaccaga gcagccccac agccaactag ggcagctgcc gccgccaaa	180
cagcaaggac agccgctgcc gccgcccgtg agcg	232
atg aca gga gtg ttt gac	
Met Thr Gly Val Phe Asp	
1	
aga agg gtc ccc agc atc cga tcc ggc gac ttc caa gct ccg ttc cag	280
Arg Arg Val Pro Ser Ile Arg Ser Gly Asp Phe Gln Ala Pro Phe Gln	
7 12 17 22	
acg tcc gca gct atg cac cat ccg tct cag gaa tcg cca act ttg ccc	328
Thr Ser Ala Ala Met His His Pro Ser Gln Glu Ser Pro Thr Leu Pro	
23 28 33 38	
gag tct tca gct acc gat tct gac tac tac agc cct acg ggg gga gcc	376
Glu Ser Ser Ala Thr Asp Ser Asp Tyr Tyr Ser Pro Thr Gly Gly Ala	
39 44 49 54	

ccg cac ggc tac tgc tct cct acc tcg gct tcc tat ggc aaa gct ctc	424
Pro His Gly Tyr Cys Ser Pro Thr Ser Ala Ser Tyr Gly Lys Ala Leu	
55 60 65 70	
aac ccc tac cag tat cag tat cac ggc gtg aac ggc tcc gcc ggg agc	472
Asn Pro Tyr Gln Tyr Gln Tyr His Gly Val Asn Gly Ser Ala Gly Ser	
71 76 81 86	
tac cca gcc aaa gct tat gcc gac tat agc tac gct agc tcc tac cac	520
Tyr Pro Ala Lys Ala Tyr Ala Asp Tyr Ser Tyr Ala Ser Ser Tyr His	
87 92 97 102	
cag tac ggc ggc gcc tac aac cgc gtc cca agc gcc acc aac cag cca	568
Gln Tyr Gly Gly Ala Tyr Asn Arg Val Pro Ser Ala Thr Asn Gln Pro	
103 108 113 118	
gag aaa gaa gtg acc gag ccc gag gtg aga atg gtg aat ggc aaa cca	616
Glu Lys Glu Val Thr Glu Pro Glu Val Arg Met Val Asn Gly Lys Pro	
119 124 129 134	
aag aaa gtt cgt aaa ccc agg act att tat tcc agc ttt cag ctg gcc	664
Lys Lys Val Arg Lys Pro Arg Thr Ile Tyr Ser Ser Phe Gln Leu Ala	
135 140 145 150	
gca tta cag aga agg ttt cag aag act cag tac ctc gcc ttg ccg gaa	712
Ala Leu Gln Arg Arg Phe Gln Lys Thr Gln Tyr Leu Ala Leu Pro Glu	
151 156 161 166	
cgc gcc gag ctg gcc gcc tcg ctg gga ttg aca caa aca cag gtg aaa	760
Arg Ala Glu Leu Ala Ala Ser Leu Gly Leu Thr Gln Thr Gln Val Lys	
167 172 177 182	
atc tgg ttt cag aac aaa aga tcc aag atc aag aag atc atg aaa aac	808
Ile Trp Phe Gln Asn Lys Arg Ser Lys Ile Lys Lys Ile Met Lys Asn	
183 188 193 198	
ggg gag atg ccc ccg gag cac agt ccc agc tcc agc gac cca atg gcg	856
Gly Glu Met Pro Pro Glu His Ser Pro Ser Ser Ser Asp Pro Met Ala	
199 204 209 214	
tgt aac tcg ccg cag tct cca gcg gtg tgg gag ccc cag ggc tcg tcc	904
Cys Asn Ser Pro Gln Ser Pro Ala Val Trp Glu Pro Gln Gly Ser Ser	
215 220 225 230	
cgc tcg ctc agc cac cac cct cat gcc cac cct ccg acc tcc aac cag	952
Arg Ser Leu Ser His His Pro His Ala His Pro Pro Thr Ser Asn Gln	
231 236 241 246	
tcc cca gcg tcc agc tac ctg gag aac tct gca tcc tgg tac aca agt	1000
Ser Pro Ala Ser Ser Tyr Leu Glu Asn Ser Ala Ser Trp Tyr Thr Ser	
247 252 257 262	
gca gcc agc tca atc aat tcc cac ctg ccg ccg ccg ggc tcc tta cag	1048
Ala Ala Ser Ser Ile Asn Ser His Leu Pro Pro Pro Gly Ser Leu Gln	
263 268 273 278	

cac ccg ctg gcg ctg gcc tcc ggg aca ctc tat tag atgg gctgctctct 1098  
 His Pro Leu Ala Leu Ala Ser Gly Thr Leu Tyr \*  
 279 284 289

cttactctct tttttgggac tactgtgttt tgctgttcta gaaaatcata aagaaaggaa 1158  
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 ccccgccggc tgagtctccg agcggccggg ctcggaagcc acgagccagc tgaggcgctc 180  
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 agcaggcctg agggccatag gcgatgagaa taggcagttg aggggtgaaa aagaaaacaa 540  
 acaaaacaaca acaacaaacc ctgaagagta ctgaagattt agaagggact ggaaaggact 600  
 tgttgcgca atg gaa gaa tct gac tct gag aaa acg acg gag aaa gaa 648  
 Met Glu Glu Ser Asp Ser Glu Lys Thr Thr Glu Lys Glu  
 1 5 10

/aat ctg ggg ccg aga atg gat cca cca cta ggg gaa ccg gaa gga tcg 696  
 Asn Leu Gly Pro Arg Met Asp Pro Pro Leu Gly Glu Pro Glu Gly Ser  
 14 19 24 29

ctt ggg tgg gtg cta cca aat aca gcc atg aag aaa aag gtg ctg ttg	744
Leu Gly Trp Val Leu Pro Asn Thr Ala Met Lys Lys Lys Val Leu Leu	
30 35 40 45	
atg ggt aaa agt ggg tct ggt aag acc agc atg agg tct att atc ttt	792
Met Gly Lys Ser Gly Ser Gly Lys Thr Ser Met Arg Ser Ile Ile Phe	
46 51 56 61	
gca aat tat att gcc aga gac aca cgt cgc ctt ggc gca aca ata cta	840
Ala Asn Tyr Ile Ala Arg Asp Thr Arg Arg Leu Gly Ala Thr Ile Leu	
62 67 72 77	
gac cgt ata cat agt ctt caa att aat agc agt ttg agc acc tac tct	888
Asp Arg Ile His Ser Leu Gln Ile Asn Ser Ser Leu Ser Thr Tyr Ser	
78 83 88 93	
ctc gta gac tct gtt gga aat aca aag aca ttt gat gta gaa cat tct	936
Leu Val Asp Ser Val Gly Asn Thr Lys Thr Phe Asp Val Glu His Ser	
94 99 104 109	
cat gtt cga ttt ctg gga aac ctg gta ttg aac ctg tgg gat tgt ggt	984
His Val Arg Phe Leu Gly Asn Leu Val Leu Asn Leu Trp Asp Cys Gly	
110 115 120 125	
ggg caa gac acc ttc atg gaa aat tat ttc act agc caa cgg gac aac	1032
Gly Gln Asp Thr Phe Met Glu Asn Tyr Phe Thr Ser Gln Arg Asp Asn	
126 131 136 141	
atc ttc cga aat gtg gag gtt ctg att tat gtc ttt gat gtg gag agc	1080
Ile Phe Arg Asn Val Glu Val Leu Ile Tyr Val Phe Asp Val Glu Ser	
142 147 152 157	
cgc gaa ctg gaa aag gac atg cac tat tac caa tca tgc ctg gag gcc	1128
Arg Glu Leu Glu Lys Asp Met His Tyr Tyr Gln Ser Cys Leu Glu Ala	
158 163 168 173	
att ctg cag aat tct cca gat gcc aaa ata ttt tgc ttg gta cac aaa	1176
Ile Leu Gln Asn Ser Pro Asp Ala Lys Ile Phe Cys Leu Val His Lys	
174 179 184 189	
atg gat ctg gta cag gag gat caa cgg gac ctg att ttt aaa gag cga	1224
Met Asp Leu Val Gln Glu Asp Gln Arg Asp Leu Ile Phe Lys Glu Arg	
190 195 200 205	
gaa gaa gat ttg agg cgt ttg tct cgc cca ttg gaa tgt tct tgt ttc	1272
Glu Glu Asp Leu Arg Arg Leu Ser Arg Pro Leu Glu Cys Ser Cys Phe	
206 211 216 221	
cga aca tct atc tgg gat gaa acc ctc tat aag gct tgg tcc agc ata	1320
Arg Thr Ser Ile Trp Asp Glu Thr Leu Tyr Lys Ala Trp Ser Ser Ile	
222 227 232 237	
gtt tat cag ctg att ccc aat gtt cag cag ctg gaa atg aac cta agg	1368
Val Tyr Gln Leu Ile Pro Asn Val Gln Gln Leu Glu Met Asn Leu Arg	
238 243 248 253	
aat ttt gct gaa att atc gaa gct gat gaa gta ctt ctt ttt gag aga	1416

Asn Phe Ala Glu Ile Ile Glu Ala Asp Glu Val Leu Leu Phe Glu Arg	
254 259 264 269	
gct act ttt ctg gta att tct cac tat cag tgt aaa gag cag cgt gat	1464
Ala Thr Phe Leu Val Ile Ser His Tyr Gln Cys Lys Glu Gln Arg Asp	
270 275 280 285	
gcc cat aga ttt gag aaa ata agc aac att att aag cag ttc aag ctg	1512
Ala His Arg Phe Glu Lys Ile Ser Asn Ile Ile Lys Gln Phe Lys Leu	
286 291 296 301	
agc tgc agc aag ctg gct gcc tct ttc cag agt atg gaa gtc agg aac	1560
Ser Cys Ser Lys Leu Ala Ala Ser Phe Gln Ser Met Glu Val Arg Asn	
302 307 312 317	
tct aac ttc gct gct ttc att gac atc ttt aca tcc aac act tat gtg	1608
Ser Asn Phe Ala Ala Phe Ile Asp Ile Phe Thr Ser Asn Thr Tyr Val	
318 323 328 333	
atg gtt gtg atg tct gat ccg tcc att cct tct gca gct act ctg atc	1656
Met Val Val Met Ser Asp Pro Ser Ile Pro Ser Ala Ala Thr Leu Ile	
334 339 344 349	
aac atc cgc aat gcc agg aaa cac ttt gaa aag ctg gaa aga gtg gat	1704
Asn Ile Arg Asn Ala Arg Lys His Phe Glu Lys Leu Glu Arg Val Asp	
350 355 360 365	
gga cca aag cag tgt ctt ctc atg cgc taa a cattgatgaa tattgtttca	1755
Gly Pro Lys Gln Cys Leu Leu Met Arg *	
366 371	
cacaaaaatt aaaagtttcc taattaatgt tgtattcata tatgtaggct ctgaaatggt	1815
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tgctattaac ttaaatagcc attgaggagt tagaagatga attgttcatg aagtcggtgt	1935
tacataaaag taggtgatat gtaagttttc tgataacaag gttctaatag tgtttaaagt	1995
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ccccgcgggc tgagtctccg agcggccggg ctcggaagcc acgagccagc tgaggcgttc 180

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cacggaatca cttggcctta aagctagcca gctcgccgt gccttgaggc caggttcgag 420

agataaaggt aaccgtgggg aaagcggccc ccagtgagc aaaggcggag gcaagaatag 480

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acaacaaca acaacaaacc ctgaagagta ctgaagattt agaagggact ggaaaggact 600

tggtgcgca atg gaa gaa tct gac tct gag aaa acg acg gag aaa gaa 648  
Met Glu Glu Ser Asp Ser Glu Lys Thr Thr Glu Lys Glu  
1 5 10

aat ctg ggg ccg aga atg gat cca cca cta ggg gaa ccg gaa gga tcg 696  
Asn Leu Gly Pro Arg Met Asp Pro Pro Leu Gly Glu Pro Glu Gly Ser  
14 19 24 29

ctt ggg tgg gtg cta cca aat aca gcc atg aag aaa aag gtg ctg ttg 744  
Leu Gly Trp Val Leu Pro Asn Thr Ala Met Lys Lys Lys Val Leu Leu  
30 35 40 45

atg ggt aaa agt ggg tct ggt aag acc agc atg agg tct att atc ttt 792  
Met Gly Lys Ser Gly Ser Gly Lys Thr Ser Met Arg Ser Ile Ile Phe  
46 51 56 61

gca aat tat att gcc aga gac aca cgt cgc ctt ggc gca aca att gat 840  
Ala Asn Tyr Ile Ala Arg Asp Thr Arg Arg Leu Gly Ala Thr Ile Asp  
62 67 72 77

gta gaa cat tct cat gtt cga ttt ctg gga aac ctg gta ttg aac ctg 888  
Val Glu His Ser His Val Arg Phe Leu Gly Asn Leu Val Leu Asn Leu  
78 83 88 93

tgg gat tgt ggt ggg caa gac acc ttc atg gaa aat tat ttc act agc 936  
Trp Asp Cys Gly Gly Gln Asp Thr Phe Met Glu Asn Tyr Phe Thr Ser  
94 99 104 109

caa cgg gac aac atc ttc cga aat gtg gag gtt ctg att tat gtc ttt 984  
Gln Arg Asp Asn Ile Phe Arg Asn Val Glu Val Leu Ile Tyr Val Phe  
110 115 120 125

gat gtg gag agc cgc gaa ctg gaa aag gac atg cac tat tac caa tca 1032  
Asp Val Glu Ser Arg Glu Leu Glu Lys Asp Met His Tyr Tyr Gln Ser  
126 131 136 141



tgc ctg gag gcc att ctg cag aat tct cca gat gcc aaa ata ttt tgc	1080
Cys Leu Glu Ala Ile Leu Gln Asn Ser Pro Asp Ala Lys Ile Phe Cys	
142 147 152 157	
ttg gta cac aaa atg gat ctg gta cag gag gat caa cgg gac ctg att	1128
Leu Val His Lys Met Asp Leu Val Gln Glu Asp Gln Arg Asp Leu Ile	
158 163 168 173	
ttt aaa gag cga gaa gaa gat ttg agg cgt ttg tct cgc cca ttg gaa	1176
Phe Lys Glu Arg Glu Glu Asp Leu Arg Arg Leu Ser Arg Pro Leu Glu	
174 179 184 189	
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Cys Ser Cys Phe Arg Thr Ser Ile Trp Asp Glu Thr <sup>3</sup> Leu Tyr Lys Ala	
190 195 200 205	
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Trp Ser Ser Ile Val Tyr Gln Leu Ile Pro Asn Val Gln Gln Leu Glu	
206 211 216 221	
atg aac cta agg aat ttt gct gaa att atc gaa gct gat gaa gta ctt	1320
Met Asn Leu Arg Asn Phe Ala Glu Ile Ile Glu Ala Asp Glu Val Leu	
222 227 232 237	
ctt ttt gag aga gct act ttt ctg gta att tct cac tat cag tgt aaa	1368
Leu Phe Glu Arg Ala Thr Phe Leu Val Ile Ser His Tyr Gln Cys Lys	
238 243 248 253	
gag cag cgt gat gcc cat aga ttt gag aaa ata agc aac att att aag	1416
Glu Gln Arg Asp Ala His Arg Phe Glu Lys Ile Ser Asn Ile Ile Lys	
254 259 264 269	
cag ttc aag ctg agc tgc agc aag ctg gct gcc tct ttc cag agt atg	1464
Gln Phe Lys Leu Ser Cys Ser Lys Leu Ala Ala Ser Phe Gln Ser Met	
270 275 280 285	
gaa gtc agg aac tct aac ttc gct gct ttc att gac atc ttt aca tcc	1512
Glu Val Arg Asn Ser Asn Phe Ala Ala Phe Ile Asp Ile Phe Thr Ser	
286 291 296 301	
aac act tat gtg atg gtt gtg atg tct gat ccg tcc att cct tct gca	1560
Asn Thr Tyr Val Met Val Val Met Ser Asp Pro Ser Ile Pro Ser Ala	
302 307 312 317	
gct act ctg atc aac atc cgc aat gcc agg aaa cac ttt gaa aag ctg	1608
Ala Thr Leu Ile Asn Ile Arg Asn Ala Arg Lys His Phe Glu Lys Leu	
318 323 328 333	
gaa aga gtg gat gga cca aag cag tgt ctt ctc atg cgc taa acattga	1657
Glu Arg Val Asp Gly Pro Lys Gln Cys Leu Leu Met Arg *	
334 339 344	
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catgaagtcg gtgttacata aaagtaggtg atatgtaagt tttctgataa caaggttcta 1897  
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acaacaaca acaacaacc ctgaagagta ctgaagattt agaagggact ggaaaggact 600  
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Met Glu Glu Ser Asp Ser Glu Lys Thr Thr Glu Lys Glu  
1 5 10

aat ctg ggg ccg aga atg gat cca cca cta ggg gaa ccg gaa gga tcg 696  
Asn Leu Gly Pro Arg Met Asp Pro Pro Leu Gly Glu Pro Glu Gly Ser  
14 19 24 29

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Asn Ile Phe Arg Asn Val Glu Val Leu Ile Tyr Val Phe Asp Val Glu	
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Ser Arg Glu Leu Glu Lys Asp Met His Tyr Tyr Gln Ser Cys Leu Glu	
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Lys Met Asp Leu Val Gln Glu Asp Gln Arg Asp Leu Ile Phe Lys Glu	
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Ile Val Tyr Gln Leu Ile Pro Asn Val Gln Gln Leu Glu Met Asn Leu	
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Arg Asn Phe Ala Glu Ile Ile Glu Ala Asp Glu Val Leu Leu Phe Glu	
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254 259 264 269	
gat gcc cat aga ttt gag aaa ata agc aac att att aag cag ttc aag	1464
Asp Ala His Arg Phe Glu Lys Ile Ser Asn Ile Ile Lys Gln Phe Lys	
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Ser Phe Arg Ile Pro Gly Ala Trp Ser Cys Ala Trp Ser Leu Asn Ile	
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Gln Ala Asn Asn Cys Phe Ser Thr Gly Leu Ser Arg Arg Val Leu Leu	
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Ala Gly Lys Ile Lys Leu Trp Asp Leu Arg Thr Thr Lys Cys Val Arg	
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Gln Tyr Glu Gly His Val Asn Glu Tyr Ala Tyr Leu Pro Leu His Val	
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Pro Tyr Pro Ala Ser Lys Ala Asp Ile Pro Ser Val Ala Phe Ser Ser	

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His Leu Leu Val Arg	Arg Gly Ser His	Arg Ile Phe Ser Ser Pro Leu
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Phe Phe Phe Arg Arg Gln Arg Asp Ile Ser His Ser Ile Val Leu Pro				
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gct gca gtt tct tca gct cat ccg gtt cct aag cac ata aag aag cca				245
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gac tat gtg acg aca ggc att gta cca gac tgg gga gac agc ata gaa				293
Asp Tyr Val Thr Thr Gly Ile Val Pro Asp Trp Gly Asp Ser Ile Glu				
72	77	82	87	
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Val Lys Asn Glu Asp Gln Ile Gln Gly Leu His Gln Ala Cys Gln Leu				
88	93	98	103	
gcc cgc cac gtc ctc ctc ttg gct ggg aag agt tta aag gtt gac atg				389
Ala Arg His Val Leu Leu Leu Ala Gly Lys Ser Leu Lys Val Asp Met				
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Thr Thr Glu Glu Ile Asp Ala Leu Val His Arg Glu Ile Ile Ser His				
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Asn Ala Tyr Pro Ser Pro Leu Gly Tyr Gly Gly Phe Pro Lys Ser Val				
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Cys Thr Ser Val Asn Asn Val Leu Cys His Gly Ile Pro Asp Ser Arg				
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cct ctt cag gat gga gat att atc aac att gat gtc aca gtc tat tac				581
Pro Leu Gln Asp Gly Asp Ile Ile Asn Ile Asp Val Thr Val Tyr Tyr				
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Ile Trp His His Ala Asn Asp Ser Asp Leu Pro Met Glu Glu Gly Met	
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Ala Phe Thr Ile Glu Pro Ile Ile Thr Glu Gly Ser Pro Glu Phe Lys	
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Ser Ala Glu Ala Val Trp Asp His Val Thr Met Ala Asn Arg Glu Leu	
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Ala Phe Lys Ala Gly Asp Val Ile Lys Val Leu Asp Ala Ser Asn Lys	
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Asp Trp Trp Trp Gly Gln Ile Asp Asp Glu Glu Gly Trp Phe Pro Ala	
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Ser Phe Val Arg Leu Trp Val Asn Gln Glu Asp Glu Val Glu Glu Gly	
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Cys Leu Gly Arg Pro Leu Gln Asn Arg Asp Gln Met Arg Ala Asn Val	
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Ile Asn Glu Ile Met Ser Thr Glu Arg His Tyr Ile Lys His Leu Lys	
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Asp Ile Cys Glu Gly Tyr Leu Lys Gln Cys Arg Lys Arg Arg Asp Met	
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Phe Ser Asp Glu Gln Leu Lys Val Ile Phe Gly Asn Ile Glu Asp Ile	
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Tyr Ala Tyr Arg Ser Val Pro Ser Ile Ser Ser Glu Ala Asp Asp Ser	
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Ile Pro Leu Ser Thr Gly Tyr Glu Lys Pro Glu Lys Ser Asp Pro Ser	
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Glu Leu Ser Trp Pro Lys Ser Pro Glu Ser Cys Ser Ser Val Ala Glu	
504 509 514 519	
agt aat ggt gtg tta aca gag gga gaa gag agt gat gtg gag agc cat	1818
Ser Asn Gly Val Leu Thr Glu Gly Glu Glu Ser Asp Val Glu Ser His	
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Gly Asn Gly Leu Glu Pro Gly Glu Ile Pro Ala Val Pro Ser Gly Glu	
536 541 546 551	
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Ser	Lys	Ser	Trp	Arg	His	Pro	Leu	Ser	Arg	Pro	Pro	Ala	Arg	Ser	Pro		
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Met	Thr	Leu	Val	Lys	Gln	Gln	Ala	Pro	Ser	Asp	Glu	Glu	Leu	Pro	Glu		
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gtt	ctg	tcc	att	gag	gag	gaa	gtg	gaa	gaa	aca	gag	tct	tgg	gcg	aaa	2058	
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cct	ctc	atc	cac	ctt	tgg	cag	acg	aag	tcc	cct	aac	ttc	gca	gct	gag	2106	
Pro	Leu	Ile	His	Leu	Trp	Gln	Thr	Lys	Ser	Pro	Asn	Phe	Ala	Ala	Glu		
616					621					626					631		
caa	gag	tat	aat	gca	aca	gtg	gcc	agg	atg	aag	cca	cac	tgt	gcc	atc	2154	
Gln	Glu	Tyr	Asn	Ala	Thr	Val	Ala	Arg	Met	Lys	Pro	His	Cys	Ala	Ile		
632					637					642					647		
tgc	act	ctg	ctc	atg	ccg	tac	cac	aag	cca	gat	agc	agc	aat	gaa	gaa	2202	
Cys	Thr	Leu	Leu	Met	Pro	Tyr	His	Lys	Pro	Asp	Ser	Ser	Asn	Glu	Glu		
648					653					658					663		
aat	gat	gct	aga	tgg	gag	aca	aaa	tta	gat	gaa	gtc	gtt	aca	tcg	gag	2250	
Asn	Asp	Ala	Arg	Trp	Glu	Thr	Lys	Leu	Asp	Glu	Val	Val	Thr	Ser	Glu		
664					669					674					679		
gga	aag	act	aag	ccc	ctc	ata	cca	gag	atg	tgt	ttt	att	tat	agt	gaa	2298	
Gly	Lys	Thr	Lys	Pro	Leu	Ile	Pro	Glu	Met	Cys	Phe	Ile	Tyr	Ser	Glu		
680					685					690					695		
gaa	aat	ata	gaa	tat	tct	cca	ccc	aat	gcc	ttc	ctt	gaa	gag	gat	gga	2346	
Glu	Asn	Ile	Glu	Tyr	Ser	Pro	Pro	Asn	Ala	Phe	Leu	Glu	Glu	Asp	Gly		
696					701					706					711		
aca	agt	ctc	ctt	att	tcc	tgt	gca	aag	tgc	tgc	gta	cgg	gtt	cat	gca	2394	
Thr	Ser	Leu	Leu	Ile	Ser	Cys	Ala	Lys	Cys	Cys	Val	Arg	Val	His	Ala		
712					717					722					727		
agt	tgt	tat	ggt	att	cct	tct	cat	gag	atc	tgt	gat	gga	tgg	ctg	tgt	2442	
Ser	Cys	Tyr	Gly	Ile	Pro	Ser	His	Glu	Ile	Cys	Asp	Gly	Trp	Leu	Cys		
728					733					738					743		
gcc	cgg	tgc	aaa	aga	aat	gcg	tgg	aca	gca	gaa	tgc	tgt	ctc	tgc	aat	2490	
Ala	Arg	Cys	Lys	Arg	Asn	Ala	Trp	Thr	Ala	Glu	Cys	Cys	Leu	Cys	Asn		
744					749					754					759		
ttg	aga	gga	ggt	gct	ctt	aag	caa	acg	aag	aac	aat	aag	tgg	gcc	cat	2538	
Leu	Arg	Gly	Gly	Ala	Leu	Lys	Gln	Thr	Lys	Asn	Asn	Lys	Trp	Ala	His		
760					765					770					775		
gtc	atg	tgc	gcc	gtt	gcg	gtc	cca	gaa	gtt	cga	ttc	act	aat	gtc	cca	2586	
Val	Met	Cys	Ala	Val	Ala	Val	Pro	Glu	Val	Arg	Phe	Thr	Asn	Val	Pro		

776	781	786	791	
gaa agg aca caa ata gat gta ggc aga ata cct tta cag agg tta aaa				2634
Glu Arg Thr Gln Ile Asp Val Gly Arg Ile Pro Leu Gln Arg Leu Lys				
792	797	802	807	
ttg aaa tgc atc ttc tgc aga cac cgg gtt aag agg gtc tct gga gcc				2682
Leu Lys Cys Ile Phe Cys Arg His Arg Val Lys Arg Val Ser Gly Ala				
808	813	818	823	
tgc atc cag tgt tcc tac ggt cgc tgc ccg gcc tcc ttc cat gtc act				2730
Cys Ile Gln Cys Ser Tyr Gly Arg Cys Pro Ala Ser Phe His Val Thr				
824	829	834	839	
tgt gcc cat gct gct ggg gta ctg atg gag cct gat gat tgg cct tat				2778
Cys Ala His Ala Ala Gly Val Leu Met Glu Pro Asp Asp Trp Pro Tyr				
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gtg gtg aac att aca tgc ttt cga cat aag gtc aac ccc aac gtg aag				2826
Val Val Asn Ile Thr Cys Phe Arg His Lys Val Asn Pro Asn Val Lys				
856	861	866	871	
tcc aag gct tgc gag aag gtc att tcc gtg ggt caa acg gtc atc acg				2874
Ser Lys Ala Cys Glu Lys Val Ile Ser Val Gly Gln Thr Val Ile Thr				
872	877	882	887	
aag cat cgg aac acc cgg tat tac agt tgc aga gtg atg gct gtg aca				2922
Lys His Arg Asn Thr Arg Tyr Tyr Ser Cys Arg Val Met Ala Val Thr				
888	893	898	903	
tcg cag acc ttc tat gag gtc atg ttt gat gat ggc tcc ttt agc aga				2970
Ser Gln Thr Phe Tyr Glu Val Met Phe Asp Asp Gly Ser Phe Ser Arg				
904	909	914	919	
gac aca ttt cct gag gat atc gtg agc cga gac tgt ctg aag ctg ggc				3018
Asp Thr Phe Pro Glu Asp Ile Val Ser Arg Asp Cys Leu Lys Leu Gly				
920	925	930	935	
cca cct gct gag gga gaa gtc gtc caa gtc aag tgg ccc gat ggc aaa				3066
Pro Pro Ala Glu Gly Glu Val Val Gln Val Lys Trp Pro Asp Gly Lys				
936	941	946	951	
ctc tat gga gca aaa tat ttt gga tca aat att gcc cac atg tac cag				3114
Leu Tyr Gly Ala Lys Tyr Phe Gly Ser Asn Ile Ala His Met Tyr Gln				
952	957	962	967	
gtt gag ttt gaa gat gga tcc cag ata gca atg aag aga gag gac atc				3162
Val Glu Phe Glu Asp Gly Ser Gln Ile Ala Met Lys Arg Glu Asp Ile				
968	973	978	983	
tac act tta gat gaa gag tta ccc aag aga gtg aaa gct cga ttt gta				3210
Tyr Thr Leu Asp Glu Glu Leu Pro Lys Arg Val Lys Ala Arg Phe Val				
984	989	994	999	
agt gct ggc aga tgc cac ttg ggg acc tgc caa gtg aat tcc ttg tcc				3258
Ser Ala Gly Arg Cys His Leu Gly Thr Cys Gln Val Asn Ser Leu Ser				
1000	1005	1010	1015	



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Met Gln Leu Thr Arg Cys Cys Phe Val Phe Leu Val Gln Gly Ser Leu	
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tat ctg gtc atc tgt ggc cag gat gat ggt cct ccc ggc tca gag gac	216
Tyr Leu Val Ile Cys Gly Gln Asp Asp Gly Pro Pro Gly Ser Glu Asp	
17 22 27 32	
cct gag cgt gat gac cac gag ggc cag ccc cgg ccc cgg gtg cct cgg	264
Pro Glu Arg Asp Asp His Glu Gly Gln Pro Arg Pro Arg Val Pro Arg	
33 38 43 48	
aag cgg ggc cac atc tca cct aag tcc cgc ccc atg ggc aat tcc act	312
Lys Arg Gly His Ile Ser Pro Lys Ser Arg Pro Met Ala Asn Ser Thr	
49 54 59 64	
ctc cta ggg ctg ctg gcc ccg cct ggg gag gct tgg ggc att ctt ggg	360
Leu Leu Gly Leu Leu Ala Pro Pro Gly Glu Ala Trp Gly Ile Leu Gly	
65 70 75 80	
cag ccc ccc aac cgc ccg aac cac agc ccc cca ccc tca gcc aag gtg	408
Gln Pro Pro Asn Arg Pro Asn His Ser Pro Pro Pro Ser Ala Lys Val	
81 86 91 96	
aag aaa atc ttt ggc tgg ggc gac ttc tac tcc aac atc aag acg gtg	456
Lys Lys Ile Phe Gly Trp Gly Asp Phe Tyr Ser Asn Ile Lys Thr Val	
97 102 107 112	
gcc ctg aac ctg ctc gtc aca ggg aag att gtg gac cat ggc aat ggg	504
Ala Leu Asn Leu Leu Val Thr Gly Lys Ile Val Asp His Gly Asn Gly	
113 118 123 128	
acc ttc agc gtc cac ttc caa cac aat gcc aca ggc cag gga aac atc	552
Thr Phe Ser Val His Phe Gln His Asn Ala Thr Gly Gln Gly Asn Ile	
129 134 139 144	
tcc atc agc ctc gtg ccc ccc agt aaa gct gta gag ttc cac cag gaa	600
Ser Ile Ser Leu Val Pro Pro Ser Lys Ala Val Glu Phe His Gln Glu	
145 150 155 160	
cag cag atc ttc atc gaa gcc aag gcc tcc aaa atc ttc aac tgc cgg	648
Gln Gln Ile Phe Ile Glu Ala Lys Ala Ser Lys Ile Phe Asn Cys Arg	
161 166 171 176	
atg gag tgg gag aag gta gaa cgg ggc cgc cgg acc tcg ctt tgc acc	696
Met Glu Trp Glu Lys Val Glu Arg Gly Arg Arg Thr Ser Leu Cys Thr	
177 182 187 192	
cac gac cca gcc aag atc tgc tcc cga gac cac gct cag agc tca gcc	744
His Asp Pro Ala Lys Ile Cys Ser Arg Asp His Ala Gln Ser Ser Ala	
193 198 203 208	
acc tgg agc tgc tcc cag ccc ttc aaa gtc gtc tgt gtc tac atc gcc	792
Thr Trp Ser Cys Ser Gln Pro Phe Lys Val Val Cys Val Tyr Ile Ala	
209 214 219 224	

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Phe Tyr Ser Thr Asp Tyr Arg Leu Val Gln Lys Val Cys Pro Asp Tyr	
225 230 235 240	
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Asn Tyr His Ser Asp Thr Pro Tyr Tyr Pro Ser Gly *	
241 246 251	
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gccgggcccgc agagcatgtg ctggatctgt tctgtgtgtc tgtctgtggg tggggggagg	1849
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 cgcgctgctg gaggtgtcg tccca atg ctc ccc aaa cgg cgg cga gcg cgg 172  
 Met Leu Pro Lys Arg Arg Arg Ala Arg  
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 gtc ggg tcc cct agc ggc gat gcc gct tcc tcc acg ccg ccc tcg acg 220  
 Val Gly Ser Pro Ser Gly Asp Ala Ala Ser Ser Thr Pro Pro Ser Thr  
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 Arg Phe Pro Gly Val Ala Ile Tyr Leu Val Glu Pro Arg Met Gly Arg  
 26 31 36 41  
 agc cgc cgg gcc ttc ctc aca ggc ctg gcg cgc tcc aaa ggc ttc cgc 316  
 Ser Arg Arg Ala Phe Leu Thr Gly Leu Ala Arg Ser Lys Gly Phe Arg  
 42 47 52 57  
 gtc ctt gac gcc tgc agc tcc gaa gcg aca cat gtt gtg atg gaa gag 364  
 Val Leu Asp Ala Cys Ser Ser Glu Ala Thr His Val Val Met Glu Glu  
 58 63 68 73  
 acc tca gca gag gag gcc gtc agc tgg cag gag cgc agg atg gca gct 412  
 Thr Ser Ala Glu Glu Ala Val Ser Trp Gln Glu Arg Arg Met Ala Ala  
 74 79 84 89  
 gct ccc ccg ggt tgc acc ccc cca gct ctg ctg gac ata agc tgg tta 460  
 Ala Pro Pro Gly Cys Thr Pro Pro Ala Leu Leu Asp Ile Ser Trp Leu  
 90 95 100 105  
 aca gag agc ctg gga gct ggg cag cct gta cct gtg gag tgc cgg cac 508  
 Thr Glu Ser Leu Gly Ala Gly Gln Pro Val Pro Val Glu Cys Arg His  
 106 111 116 121  
 cgc ctg gag gtg gct ggg cca agg aag ggg cct ctg agc cca gca tgg 556  
 Arg Leu Glu Val Ala Gly Pro Arg Lys Gly Pro Leu Ser Pro Ala Trp  
 122 127 132 137  
 atg cct gcc tat gcc tgc cag cgc cct acg ccc ctc aca cac cac aac 604  
 Met Pro Ala Tyr Ala Cys Gln Arg Pro Thr Pro Leu Thr His His Asn  
 138 143 148 153  
 act ggc ctc tcc gag gct ctg gag ata ctg gcc gag gca gca ggc ttt 652  
 Thr Gly Leu Ser Glu Ala Leu Glu Ile Leu Ala Glu Ala Ala Gly Phe  
 154 159 164 169  
 gaa ggc agt gag ggc cgc ctc ctc acc ttc tgc aga gca gcc tcg gtg 700  
 Glu Gly Ser Glu Gly Arg Leu Leu Thr Phe Cys Arg Ala Ala Ser Val  
 170 175 180 185  
 ctc aag gcc ctt ccc agc cct gtc aca acc ctg agc cag ctg cag ggg 748  
 Leu Lys Ala Leu Pro Ser Pro Val Thr Thr Leu Ser Gln Leu Gln Gly  
 186 191 196 201  
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Leu Pro His Phe Gly Glu His Ser Ser Arg Val Val Gln Glu Leu Leu	
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gag cat gga gtg tgt gag gag gtg gag aga gtt cgg cgc tca gag agg	844
Glu His Gly Val Cys Glu Glu Val Glu Arg Val Arg Arg Ser Glu Arg	
218 223 228 233	
tac cag acc atg aag ctc ttc acc cag atc ttc ggg gtc ggt gtg aag	892
Tyr Gln Thr Met Lys Leu Phe Thr Gln Ile Phe Gly Val Gly Val Lys	
234 239 244 249	
act gct gac cgg tgg tac cgg gaa gga ctg cga acc tta gat gac ctc	940
Thr Ala Asp Arg Trp Tyr Arg Glu Gly Leu Arg Thr Leu Asp Asp Leu	
250 255 260 265	
cga gag cag ccc cag aaa cta acc caa cag cag aaa gcg ggt gag ccc	988
Arg Glu Gln Pro Gln Lys Leu Thr Gln Gln Gln Lys Ala Gly Glu Pro	
266 271 276 281	
tcc aga gag gct ggg ccc tgg gct tcc cta aac tgc acc ctg gat ccc	1036
Ser Arg Glu Ala Gly Pro Trp Ala Ser Leu Asn Cys Thr Leu Asp Pro	
282 287 292 297	
tca gca tca act ccc tag agggaa gggagcagtc tgggtgcagag ggtttggtgg	1090
Ser Ala Ser Thr Pro *	
298 303	
cagctttgtg tgggtgggctt cctgggggtct ccacccagtg cagtcaggat ctatcaaagc	1150
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tgcctactgg ttagactttg accagtgacc agggacagcc tgggccttgg gcacactgcc	1270
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gccgaggtac aaggatcgct cgagcccggg aggtcaagcc ttgaggccaa ggtggaagtt	1690
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gag tct ctg gca gac ctg acg gac cac cgg gcc cac cgc tgt cct gga 96  
Glu Ser Leu Ala Asp Leu Thr Asp His Arg Ala His Arg Cys Pro Gly  
17 22 27 32

gat ggt gat gac gac cca caa ctc tcc tgg gtg gcc tcg tct ccc tcc 144  
Asp Gly Asp Asp Asp Pro Gln Leu Ser Trp Val Ala Ser Ser Pro Ser  
33 38 43 48

agc aag gat gtt gcg tca ccc acg cag atg atc gga gat ggt tgt gac 192  
Ser Lys Asp Val Ala Ser Pro Thr Gln Met Ile Gly Asp Gly Cys Asp  
49 54 59 64

ctc ggc ctc ggc gag gag gaa ggg ggc acg ggc ctg cca tac cct tgc 240  
Leu Gly Leu Gly Glu Glu Glu Gly Gly Thr Gly Leu Pro Tyr Pro Cys  
65 70 75 80

cag ttc tgc gac aag tcc ttc atc cgc ttg agc tac ttg aag agg cac 288  
Gln Phe Cys Asp Lys Ser Phe Ile Arg Leu Ser Tyr Leu Lys Arg His  
81 86 91 96

gag cag atc cac agc gac aag ctg ccg ttc aag tgc acc tac tgc agc 336  
Glu Gln Ile His Ser Asp Lys Leu Pro Phe Lys Cys Thr Tyr Cys Ser  
97 102 107 112

cgc ctc ttc aag cac aag agg agc cgt gac cgg cac atc aag ctg cat 384  
Arg Leu Phe Lys His Lys Arg Ser Arg Asp Arg His Ile Lys Leu His  
113 118 123 128

acg ggc gac aag aag tat cac tgc cac gag tgc gag gca gcc ttc tcc 432  
Thr Gly Asp Lys Lys Tyr His Cys His Glu Cys Glu Ala Ala Phe Ser  
129 134 139 144

cgc agc gac cac ctc aag atc cac ctg aag acc cac agc tcc agc aag 480  
Arg Ser Asp His Leu Lys Ile His Leu Lys Thr His Ser Ser Ser Lys  
145 150 155 160

ccc ttc aag tgc act gtg tgc aag cgc ggc ttc tcc tcc acc agc tcg 528  
Pro Phe Lys Cys Thr Val Cys Lys Arg Gly Phe Ser Ser Thr Ser Ser  
161 166 171 176

ctg cag agc cac atg cag gcc cac aaa aag aac aag gag cat ctg gcc 576  
Leu Gln Ser His Met Gln Ala His Lys Lys Asn Lys Glu His Leu Ala  
177 182 187 192

aag tcg gag aag gaa gcc aag aag gac gac ttc atg tgc gac tac tgc 624  
Lys Ser Glu Lys Glu Ala Lys Lys Asp Asp Phe Met Cys Asp Tyr Cys



193	198	203	208	
gag gac acc ttc agc cag acg gag gag ctg gag aag cac gtg ctc acc				672
Glu Asp Thr Phe Ser Gln Thr Glu Glu Leu Glu Lys His Val Leu Thr				
209	214	219	224	
cgc cac ccg cag ctg tcc gag aag gcg gac ctg cag tgc att cac tgc				720
Arg His Pro Gln Leu Ser Glu Lys Ala Asp Leu Gln Cys Ile His Cys				
225	230	235	240	
cct gag gtc ttc gtc gac gag aac aca ctg ctc gcc cat atc cac caa				768
Pro Glu Val Phe Val Asp Glu Asn Thr Leu Leu Ala His Ile His Gln				
241	246	251	256	
gcc cac gcc aac cag aaa cac aag tgc ccc atg tgc cct gag cag ttc				816
Ala His Ala Asn Gln Lys His Lys Cys Pro Met Cys Pro Glu Gln Phe				
257	262	267	272	
tcc tca gtg gaa ggt gtc tac tgc cac ctg gac agc cac cgg cag ccc				864
Ser Ser Val Glu Gly Val Tyr Cys His Leu Asp Ser His Arg Gln Pro				
273	278	283	288	
gac tcc agc aac cac agt gtc agt ccc gac cct gta ctg ggc agc gtg				912
Asp Ser Ser Asn His Ser Val Ser Pro Asp Pro Val Leu Gly Ser Val				
289	294	299	304	
gcc tcc atg agc agc gcc aca ccc gac tcc agc gcc tct gtg gag cgt				960
Ala Ser Met Ser Ser Ala Thr Pro Asp Ser Ser Ala Ser Val Glu Arg				
305	310	315	320	
ggc tcc acc ccg gac tcc acc ttg aag ccg ctg cgg ggg cag aag aag				1008
Gly Ser Thr Pro Asp Ser Thr Leu Lys Pro Leu Arg Gly Gln Lys Lys				
321	326	331	336	
atg cgg gat gac ggg cag ggc tgg acc aag gtg gtc tat agc tgc ccc				1056
Met Arg Asp Asp Gly Gln Gly Trp Thr Lys Val Val Tyr Ser Cys Pro				
337	342	347	352	
tat tgt tcc aag cgg gac ttt aac agc ctg gcc gtg ctg gag atc cac				1104
Tyr Cys Ser Lys Arg Asp Phe Asn Ser Leu Ala Val Leu Glu Ile His				
353	358	363	368	
ctg aag acc atc cac gcg gac aag ccc cag cag agc cac aca tgt cag				1152
Leu Lys Thr Ile His Ala Asp Lys Pro Gln Gln Ser His Thr Cys Gln				
369	374	379	384	
atc tgc ctg gac tcc atg ccc acc ctc tac aac ctc aac gag cac gtt				1200
Ile Cys Leu Asp Ser Met Pro Thr Leu Tyr Asn Leu Asn Glu His Val				
385	390	395	400	
cgc aag ctg cac aag aac cat gcc tac cct gtg atg cag ttt ggc aac				1248
Arg Lys Leu His Lys Asn His Ala Tyr Pro Val Met Gln Phe Gly Asn				
401	406	411	416	
atc tct gcc ttc cac tgc aac tac tgc ccc gag atg ttc gcc gac atc				1296
Ile Ser Ala Phe His Cys Asn Tyr Cys Pro Glu Met Phe Ala Asp Ile				
417	422	427	432	

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Gln Ser Phe Met Glu Val Tyr Ser Cys Pro Tyr Cys Thr Asn Ser Pro	
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Ile Phe Gly Ser Ile Leu Lys Leu Thr Lys His Ile Lys Glu Asn His	
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Cys Asp Leu Lys Phe Ser Asn Phe Glu Ser Phe Gln Thr His Leu Lys	
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Ser Lys Ala Phe His Ala Ile Ile Leu Leu Glu Lys His Leu Arg Glu	
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Ser Cys Leu Cys Phe Arg Ser Trp Leu Pro Ala Met Leu Ala Val Leu
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Cys Tyr Gly Asn Asn Thr Met Arg Thr Pro Asn Ile Asp Arg Leu Ala
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acc cca agc aga gcc gcc ttc ctc acg ggc aga tac cct gtg cga tca      522
Thr Pro Ser Arg Ala Ala Phe Leu Thr Gly Arg Tyr Pro Val Arg Ser
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Gly Met Val Ser Ser Ile Gly Tyr Arg Val Leu Gln Trp Thr Gly Ala
103                               108                               113                               118

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Ser Gly Gly Leu Pro Thr Asn Glu Thr Thr Phe Ala Lys Ile Leu Glu
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Gln	Met	Asp	Pro	Arg	Gly	Leu	Ser	Pro	Arg	Gln	Ser	Lys	Ser	Asp	Ser	
225					230					235					240	
gat	gat	gat	gac	ctg	cca	aat	gtg	acc	tta	gat	agc	gtt	aat	gaa	act	884
Asp	Asp	Asp	Asp	Leu	Pro	Asn	Val	Thr	Leu	Asp	Ser	Val	Asn	Glu	Thr	
241					246					251					256	
gga	tct	acg	gcc	ctt	tcc	ata	gcc	aga	gca	gta	caa	gag	gta	cat	ccg	932
Gly	Ser	Thr	Ala	Leu	Ser	Ile	Ala	Arg	Ala	Val	Gln	Glu	Val	His	Pro	
257					262					267					272	
tcc	cca	gta	tca	agg	gtc	cgg	ggc	aat	cga	atg	aat	aat	caa	aag	ttt	980
Ser	Pro	Val	Ser	Arg	Val	Arg	Gly	Asn	Arg	Met	Asn	Asn	Gln	Lys	Phe	
273					278					283					288	
cct	tgt	tca	att	tca	cca	ttt	agt	att	gag	agc	aca	aga	cgc	cag	aga	1028
Pro	Cys	Ser	Ile	Ser	Pro	Phe	Ser	Ile	Glu	Ser	Thr	Arg	Arg	Gln	Arg	
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cgg	tct	gaa	tcc	cca	gac	tcc	aga	aaa	cgg	cgt	atc	cac	aga	tgt	gat	1076
Arg	Ser	Glu	Ser	Pro	Asp	Ser	Arg	Lys	Arg	Arg	Ile	His	Arg	Cys	Asp	
305					310					315					320	
ttt	gag	gga	tgc	aac	aaa	gtg	tac	aca	aaa	agt	tct	cac	ctg	aag	gct	1124
Phe	Glu	Gly	Cys	Asn	Lys	Val	Tyr	Thr	Lys	Ser	Ser	His	Leu	Lys	Ala	
321					326					331					336	
cac	cgg	agg	aca	cat	aca	gga	gag	aaa	cct	tac	aag	tgt	acc	tgg	gaa	1172
His	Arg	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Thr	Trp	Glu	
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Gly	Cys	Thr	Trp	Lys	Phe	Ala	Arg	Ser	Asp	Glu	Leu	Thr	Arg	His	Tyr	
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Arg	Lys	His	Thr	Gly	Val	Lys	Pro	Phe	Lys	Cys	Ala	Asp	Cys	Asp	Arg	
369					374					379					384	
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Ser	Phe	Ser	Arg	Ser	Asp	His	Leu	Ala	Leu	His	Arg	Arg	Arg	His	Met	
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Leu	Val	*														

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ctgagagacc  atg gca aag aat ggt cca gag aat tgt gaa gac tgt cac      169
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att cta aat gca gaa gct ttt aaa tcc aag aaa ata tgt aaa tca ctt      217
Ile Leu Asn Ala Glu Ala Phe Lys Ser Lys Lys Ile Cys Lys Ser Leu
  14              19              24              29

aag att tgt gga ctg gtg ttt ggt atc ctg gcc cta act cta att gtc      265
Lys Ile Cys Gly Leu Val Phe Gly Ile Leu Ala Leu Thr Leu Ile Val
  30              35              40              45

ctg ttt tgg ggg agc aag cac ttc tgg ccg gag gta ccc aaa aaa gcc      313
Leu Phe Trp Gly Ser Lys His Phe Trp Pro Glu Val Pro Lys Lys Ala
  46              51              56              61

tat gac atg gag cac act ttc tac agc aat gga gag aag aag aag att      361
Tyr Asp Met Glu His Thr Phe Tyr Ser Asn Gly Glu Lys Lys Lys Ile
  62              67              72              77

tac atg gaa att gat cct gtg acc aga act gaa ata ttc aga agc gga      409
Tyr Met Glu Ile Asp Pro Val Thr Arg Thr Glu Ile Phe Arg Ser Gly
  78              83              88              93

aat ggc act gat gaa aca ttg gaa gta cac gac ttt aaa aac gga tac      457
Asn Gly Thr Asp Glu Thr Leu Glu Val His Asp Phe Lys Asn Gly Tyr
  94              99              104              109

act ggc atc tac ttc gtg ggt ctt caa aaa tgt ttt atc aaa act cag      505
Thr Gly Ile Tyr Phe Val Gly Leu Gln Lys Cys Phe Ile Lys Thr Gln
  110              115              120              125

att aaa gtg att cct gaa ttt tct gaa cca gaa gag gaa ata gat gag      553
Ile Lys Val Ile Pro Glu Phe Ser Glu Pro Glu Glu Glu Ile Asp Glu
  126              131              136              141

aat gaa gaa att acc aca act ttc ttt gaa cag tca gtg att tgg gtc      601

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aa 1428

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ctgagagacc atg gca aag aat ggt cca gag aat tgt gaa gac tgt cac 169

Met Ala Lys Asn Gly Pro Glu Asn Cys Glu Asp Cys His

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5

10

att cta aat gca gaa gct ttt aaa tcc aag aaa ata tgt aaa tca ctt 217

Ile Leu Asn Ala Glu Ala Phe Lys Ser Lys Lys Ile Cys Lys Ser Leu

14

19

24

29

aag att tgt gga ctg gtg ttt ggt atc ctg gcc cta act cta att gtc 265

Lys Ile Cys Gly Leu Val Phe Gly Ile Leu Ala Leu Thr Leu Ile Val

30

35

40

45

ctg ttt tgg ggg agc aag cac ttc tgg ccg gag gta ccc aaa aaa gcc 313

Leu Phe Trp Gly Ser Lys His Phe Trp Pro Glu Val Pro Lys Lys Ala

46

51

56

61

tat gac atg gag cac act ttc tac agc aat gga gag aag aag aag att 361

Tyr Asp Met Glu His Thr Phe Tyr Ser Asn Gly Glu Lys Lys Lys Ile

62

67

72

77

tac atg gaa att gat cct gtg acc aga act gaa ata ttc aga agc gga 409

Tyr Met Glu Ile Asp Pro Val Thr Arg Thr Glu Ile Phe Arg Ser Gly

78

83

88

93

aat ggc act gat gaa aca ttg gaa gta cac gac ttt aaa aac gga tac 457

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94

99

104

109

act ggc atc tac ttc gtg ggt ctt caa aaa tgt ttt atc aaa act cag 505

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110

115

120

125

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Ile Lys Val Ile Pro Glu Phe Ser Glu Pro Glu Glu Glu Ile Asp Glu

126

131

136

141

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cca gca gaa aag cct att gaa aac cga gat ttt ctt aaa aat tcc aaa	649
Pro Ala Glu Lys Pro Ile Glu Asn Arg Asp Phe Leu Lys Asn Ser Lys	
158 163 168 173	
att ctg gag att tgt gat aac gtg acc atg tat tgg atc aat ccc act	697
Ile Leu Glu Ile Cys Asp Asn Val Thr Met Tyr Trp Ile Asn Pro Thr	
174 179 184 189	
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Leu Ile Ser Val Ser Glu Leu Gln Asp Phe Glu Glu Glu Gly Glu Asp	
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Leu His Phe Pro Ala Asn Glu Lys Lys Gly Ile Glu Gln Asn Glu Gln	
206 211 216 221	
tgg gtg gtc cct caa gtg aaa gta gag aag acc cgt cac gcc aga caa	841
Trp Val Val Pro Gln Val Lys Val Glu Lys Thr Arg His Ala Arg Gln	
222 227 232 237	
gca agt gag gaa gaa ctt cca ata aat gac tat act gaa aat gga ata	889
Ala Ser Glu Glu Glu Leu Pro Ile Asn Asp Tyr Thr Glu Asn Gly Ile	
238 243 248 253	
gaa ttt gat ccc atg ctg gat gag aga ggt tat tgt tgt att tac tgc	937
Glu Phe Asp Pro Met Leu Asp Glu Arg Gly Tyr Cys Cys Ile Tyr Cys	
254 259 264 269	
cgt cga ggc aac cgc tat tgc cgc cgc gtc tgt gaa cct tta cta ggc	985
Arg Arg Gly Asn Arg Tyr Cys Arg Arg Val Cys Glu Pro Leu Leu Gly	
270 275 280 285	
tac tac cca tat cca tac tgc tac caa gga gga cga gtc atc tgt cgt	1033
Tyr Tyr Pro Tyr Pro Tyr Cys Tyr Gln Gly Gly Arg Val Ile Cys Arg	
286 291 296 301	
gtc atc atg cct tgt aac tgg tgg gtg gcc cgc atg ctg ggg agg gtc	1081
Val Ile Met Pro Cys Asn Trp Trp Val Ala Arg Met Leu Gly Arg Val	
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318	
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ccaggggacc tgagaggcgc gacaaacagt cggcgcgttt ggtactcgcg cctgcagagc      180
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agcgcagccg agtcggaacc aaccggttgt ttggtgaaac ctaccccaga gcctcccgcg      300
gccacagag cacagactgt ttttgccaac c   atg gca tct gga gat gac agt      352
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cct atc ttt gaa gat gat gag agc cct cct tac agc cta gaa aaa atg      400
Pro Ile Phe Glu Asp Asp Glu Ser Pro Pro Tyr Ser Leu Glu Lys Met
   8               13               18               23

aca gat ctc gta gct gtt tgg gat gtt gct tta agt gac gga gtc cac      448
Thr Asp Leu Val Ala Val Trp Asp Val Ala Leu Ser Asp Gly Val His
  24               29               34               39

aag atc gaa ttt gaa cat ggg act aca tca ggc aaa cga gta gta tat      496
Lys Ile Glu Phe Glu His Gly Thr Thr Ser Gly Lys Arg Val Val Tyr
  40               45               50               55

gta gat gga aag gaa gag ata aga aaa gag tgg atg ttc aaa tta gtg      544
Val Asp Gly Lys Glu Glu Ile Arg Lys Glu Trp Met Phe Lys Leu Val
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ggc aaa gaa aca ttc tat gtt gga gct gca aag aca aaa gcg acc ata      592
Gly Lys Glu Thr Phe Tyr Val Gly Ala Ala Lys Thr Lys Ala Thr Ile
  72               77               82               87

aat ata gac gct atc agt ggt ttt gct tat gaa tat act ctg gaa att      640
Asn Ile Asp Ala Ile Ser Gly Phe Ala Tyr Glu Tyr Thr Leu Glu Ile
  88               93               98              103

aat ggg aaa agt ctc aag aag tat atg gag gac aga tca aaa acc acc      688
Asn Gly Lys Ser Leu Lys Lys Tyr Met Glu Asp Arg Ser Lys Thr Thr
 104              109              114              119

aat act tgg gta tta cac atg gat ggt gag aac ttt aga att gtt ttg      736

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58 63 68 73	
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Val Val Gly Met Gly Arg Gly Leu Leu Asn Tyr Pro Arg Val Arg Glu	
74 79 84 89	
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Leu Tyr Ala Ala Ala Arg Arg Val Leu Gly Tyr Asp Leu Leu Glu Leu	
90 95 100 105	
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Ser Leu His Gly Pro Gln Glu Thr Leu Asp Arg Thr Val His Cys Gln	
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ccc gcg atc ttc gtg gca tcg ctg gcc gct gtc gag aaa cta cat cac	435
Pro Ala Ile Phe Val Ala Ser Leu Ala Ala Val Glu Lys Leu His His	
122 127 132 137	
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Leu Gln Pro Ser Val Ile Glu Asn Cys Val Ala Ala Ala Gly Phe Ser	
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Val Gly Glu Phe Ala Ala Leu Val Phe Ala Gly Ala Met Glu Phe Ala	
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Glu Gly Leu Tyr Ala Val Lys Ile Arg Ala Glu Ala Met Gln Glu Ala	
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Ser Glu Ala Val Pro Ser Gly Met Leu Ser Val Leu Gly Gln Pro Gln	
186 191 196 201	
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Ser Lys Phe Asn Phe Ala Cys Leu Glu Ala Arg Glu His Cys Lys Ser	
202 207 212 217	
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218 223 228 233	
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Asp Cys Arg Val Ile Ser Gly His Gln Glu Ala Leu Arg Phe Leu Gln	
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Lys Asn Ser Ser Lys Phe His Phe Arg Arg Thr Arg Met Leu Pro Val	
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Ser Gly Ala Phe His Thr Arg Leu Met Glu Pro Ala Val Glu Pro Leu	
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Thr Gln Ala Leu Lys Ala Val Asp Ile Lys Lys Pro Leu Val Ser Val	
282 287 292 297	
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Tyr Ser Asn Val His Ala His Arg Tyr Arg His Pro Gly His Ile His	
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Asn Met Gln Ala Trp Lys Ser Tyr Ser Ala Val Asp Val Leu Gln Thr	
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Met Pro Ala Thr  
1  
cgg aag cca atg aga tat ggg cat aca gag gga cac acg gag gtc tgt 163  
Arg Lys Pro Met Arg Tyr Gly His Thr Glu Gly His Thr Glu Val Cys  
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Phe Asp Asp Ser Gly Ser Phe Ile Val Thr Cys Gly Ser Asp Gly Asp  
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Val Arg Ile Trp Glu Asp Leu Asp Asp Asp Asp Pro Lys Phe Ile Asn  
37 42 47 52  
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Val Gly Glu Lys Ala Tyr Ser Cys Ala Leu Lys Ser Gly Lys Leu Val  
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Val Pro Asp Gly Ile Leu Thr Arg Phe Thr Thr Asn Ala Asn His Val  
85 90 95 100  
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Val Phe Asn Gly Asp Gly Thr Lys Ile Ala Ala Gly Ser Ser Asp Phe  
101 106 111 116  
cta gtc aaa att gtg gat gtg atg gat agc agc caa cag aaa aca ttt 499  
Leu Val Lys Ile Val Asp Val Met Asp Ser Ser Gln Gln Lys Thr Phe  
117 122 127 132  
cga gga cat gat gcc cct gtt tta agt ctt tcc ttt gat cct aag gac 547  
Arg Gly His Asp Ala Pro Val Leu Ser Leu Ser Phe Asp Pro Lys Asp  
133 138 143 148  
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181 186 191 196

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Lys Ser Gly Lys Leu Leu Ala Ile Pro Val Glu Lys Ser Val Lys Leu	
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Tyr Arg Arg Glu Ser Trp Ser His Gln Phe Asp Leu Ser Asp Asn Phe	
213 218 223 228	
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229 234 239 244	
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Cys Gly Leu Ala Trp His Pro Thr Cys Gly Arg Ile Ser Tyr Thr Asp	
277 282 287 292	
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Ala Glu Gly Asn Leu Gly Leu Leu Glu Asn Val Cys Asp Pro Ser Gly	
293 298 303 308	
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325 330 335 340	
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357 362 367 372	
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Glu Gly Ser Ile His Asn Leu Pro Leu Val Thr Ser Gln Arg Pro Phe	
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Tyr Asp Gly Pro Met Pro Thr Pro Arg Gln Lys Pro Phe Gln Ser Gly	
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Thr	Glu	Asn	Gln	Glu	Glu	Lys	Ala	Lys	Glu	Asn	Leu	Asn	Leu	Ser	Lys				

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gct gaa gaa tat gac gag aag acg agt gaa cta ctt gtg aga aag tgg 199  
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Ser	Ile	Asn	Val	Thr	Thr	Val	Cys	Arg	Pro	Ala	Gly	Asn	Glu	Ile	Trp	
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Cys	Ser	Cys	Glu	Thr	Gly	Tyr	Gly	Trp	Pro	Arg	Glu	Arg	Cys	Leu	His	
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Glu	Asp	Val	Thr	Leu	Asn	Met	Arg	Val	Arg	Leu	Asn	Val	Gly	Phe	Gln	
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Glu	Asp	Leu	Met	Asn	Thr	Ser	Ser	Ala	Leu	Tyr	Arg	Ser	Tyr	Lys	Thr	
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Asp	Leu	Glu	Thr	Ala	Phe	Arg	Lys	Gly	Tyr	Gly	Ile	Leu	Pro	Gly	Phe	
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Lys	Gly	Val	Thr	Val	Thr	Gly	Phe	Lys	Ser	Gly	Ser	Val	Val	Val	Thr	
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Asn Ser Phe Gln Ala Val Thr Ile Asn Glu Ser Asn Phe Phe Val Thr	
264 269 274 279	
cca gaa atc atc ttt gaa ggg gac aca gtc agt ctg gtg tgt gaa aag	1156
Pro Glu Ile Ile Phe Glu Gly Asp Thr Val Ser Leu Val Cys Glu Lys	
280 285 290 295	
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Glu Val Leu Ser Ser Asn Val Ser Trp Arg Tyr Glu Glu Gln Gln Leu	
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Glu Ile Gln Asn Ser Ser Arg Phe Ser Ile Tyr Thr Ala Leu Phe Asn	
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Asn Met Thr Ser Val Ser Lys Leu Thr Ile His Asn Ile Thr Pro Gly	
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Asp Ala Gly Glu Tyr Val Cys Lys Leu Ile Leu Asp Ile Phe Glu Tyr	
344 349 354 359	
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Glu Cys Lys Lys Lys Ile Asp Val Met Pro Ile Gln Ile Leu Ala Asn	
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Glu Glu Met Lys Val Met Cys Asp Asn Asn Pro Val Ser Leu Asn Cys	
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Cys Ser Gln Gly Asn Val Asn Trp Ser Lys Val Glu Trp Lys Gln Glu	
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Cys Ser Arg Tyr Thr Leu Lys Ala Asp Gly Thr Gln Cys Pro Ser Gly	
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Ser Ser Gly Thr Thr Val Ile Tyr Thr Cys Glu Phe Ile Ser Ala Tyr	
440 445 450 455	
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Gly Ala Arg Gly Ser Ala Asn Ile Lys Val Thr Phe Ile Ser Val Ala	
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Asn Leu Thr Ile Thr Pro Asp Pro Ile Ser Val Ser Glu Gly Gln Asn	

472	477	482	487	
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Phe Ser Ile Lys Cys Ile Ser Asp Val Ser Asn Tyr Asp Glu Val Tyr				
488	493	498	503	
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Trp Asn Thr Ser Ala Gly Ile Lys Ile Tyr Gln Arg Phe Tyr Thr Thr				
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agg agg tat ctt gat gga gca gaa tca gta ctg aca gtc aag acc tcg				1876
Arg Arg Tyr Leu Asp Gly Ala Glu Ser Val Leu Thr Val Lys Thr Ser				
520	525	530	535	
acc agg gag tgg aat gga acc tat cac tgc ata ttt aga tat aag aat				1924
Thr Arg Glu Trp Asn Gly Thr Tyr His Cys Ile Phe Arg Tyr Lys Asn				
536	541	546	551	
tca tac agt att gca acc aaa gac gtc att gtt cac ccg ctg cct cta				1972
Ser Tyr Ser Ile Ala Thr Lys Asp Val Ile Val His Pro Leu Pro Leu				
552	557	562	567	
aag ctg aac atc atg gtt gat cct ttg gaa gct act gtt tca tgc agt				2020
Lys Leu Asn Ile Met Val Asp Pro Leu Glu Ala Thr Val Ser Cys Ser				
568	573	578	583	
ggt tcc cat cac atc aag tgc tgc ata gag gag gat gga gac tac aaa				2068
Gly Ser His His Ile Lys Cys Cys Ile Glu Glu Asp Gly Asp Tyr Lys				
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gtt act ttc cat atg ggt tcc tca tcc ctt cct gct gca aaa gaa gtt				2116
Val Thr Phe His Met Gly Ser Ser Ser Leu Pro Ala Ala Lys Glu Val				
600	605	610	615	
aac aaa aaa caa gtg tgc tac aaa cac aat ttc aat gca agc tca gtt				2164
Asn Lys Lys Gln Val Cys Tyr Lys His Asn Phe Asn Ala Ser Ser Val				
616	621	626	631	
tcc tgg tgt tca aaa act gtt gat gtg tgt tgt cac ttt acc aat gct				2212
Ser Trp Cys Ser Lys Thr Val Asp Val Cys Cys His Phe Thr Asn Ala				
632	637	642	647	
gct aat aat tca gtt tgg agc cca tct atg aag ctg aat ctg gtt cct				2260
Ala Asn Asn Ser Val Trp Ser Pro Ser Met Lys Leu Asn Leu Val Pro				
648	653	658	663	
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Gly Glu Asn Ile Thr Cys Gln Asp Pro Val Ile Gly Val Gly Glu Pro				
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Gly Lys Val Ile Gln Lys Leu Cys Arg Phe Ser Asn Val Pro Ser Ser				
680	685	690	695	
cct gag agt ccc att ggc ggg acc atc act tac aaa tgt gta ggc tcc				2404
Pro Glu Ser Pro Ile Gly Gly Thr Ile Thr Tyr Lys Cys Val Gly Ser				
696	701	706	711	



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Gln Trp Glu Glu Lys Arg Asn Asp Cys Ile Ser Ala Pro Ile Asn Ser	
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ctg ctc cag atg gct aag gct ttg atc aag agc ccc tct cag gat gag	2500
Leu Leu Gln Met Ala Lys Ala Leu Ile Lys Ser Pro Ser Gln Asp Glu	
728 733 738 743	
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Met Leu Pro Thr Tyr Leu Lys Asp Leu Ser Ile Ser Ile Asp Lys Ala	
744 749 754 759	
gaa cat gaa atc agc tct tct cct ggg agt ctg gga gcc att att aac	2596
Glu His Glu Ile Ser Ser Ser Pro Gly Ser Leu Gly Ala Ile Ile Asn	
760 765 770 775	
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Ile Leu Asp Leu Leu Ser Thr Val Pro Thr Gln Val Asn Ser Glu Met	
776 781 786 791	
atg acg cac gtg ctc tct acg gtt aat gtc atc ctt ggc aag ccc gtc	2692
Met Thr His Val Leu Ser Thr Val Asn Val Ile Leu Gly Lys Pro Val	
792 797 802 807	
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Leu Asn Thr Trp Lys Val Leu Gln Gln Gln Trp Thr Asn Gln Ser Ser	
808 813 818 823	
cag cta cta cat tca gtg gaa aga ttt tcc caa gca tta cag tca gga	2788
Gln Leu Leu His Ser Val Glu Arg Phe Ser Gln Ala Leu Gln Ser Gly	
824 829 834 839	
gat agc cct cct ttg tcc ttc tcc caa act aat gtg cag atg agc agc	2836
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Thr Val Ile Lys Ser Ser His Pro Glu Thr Tyr Gln Gln Arg Phe Val	
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Phe Pro Tyr Phe Asp Leu Trp Gly Asn Val Ile Asp Lys Ser Tyr	
872 877 882 887	
cta gaa aac ttg cag tgc gat tgc tct att gtc acc atg gct ttc cca	2980
Leu Glu Asn Leu Gln Ser Asp Ser Ser Ile Val Thr Met Ala Phe Pro	
888 893 898 903	
act ctc caa gcc atc ctt gct cag gat atc cag gaa aat aac ttt gca	3028
Thr Leu Gln Ala Ile Leu Ala Gln Asp Ile Gln Glu Asn Asn Phe Ala	
904 909 914 919	
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Trp Asp Ser Ser Gly Cys Tyr Val Glu Glu Gly Asp Gly Asp Asn Val	
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acc tgt atc tgt gac cac cta aca tca ttc tcc atc ctc atg tcc cct	3268
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984 989 994 999	
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Asp Ser Pro Asp Pro Ser Ser Leu Leu Gly Ile Leu Leu Asp Ile Ile	
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Ser Tyr Val Gly Val Gly Phe Ser Ile Leu Ser Leu Ala Ala Cys Leu	
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Tyr Met Arg His Thr Cys Ile Val Asn Ile Ala Ala Ser Leu Leu Val	
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gcc aac acc tgg ttc att gtg gtc gct gcc atc cag gac aat cgc tac	3508
Ala Asn Thr Trp Phe Ile Val Val Ala Ala Ile Gln Asp Asn Arg Tyr	
1064 1069 1074 1079	
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Ile Leu Cys Lys Thr Ala Cys Val Ala Ala Thr Phe Phe Ile His Phe	
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Val Ile Thr Leu Gly Ala Thr Gln Pro Arg Glu Val Tyr Thr Arg Lys	
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Met Ala Ala Gln Arg Leu Gly Lys Arg Val Leu
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Gly Gly Leu Gln Lys Arg His Ala Arg Val Thr Val Lys Tyr Asp Arg
28 33 38 43

cgg gag ctg cag cgg cgg ctg gac gtg gag aag tgg atc gac ggg cgc 254
Arg Glu Leu Gln Arg Arg Leu Asp Val Glu Lys Trp Ile Asp Gly Arg
44 49 54 59

ctg gag gag ctg tac cgc ggc atg gag gca gac atg ccc gat gag atc 302
Leu Glu Glu Leu Tyr Arg Gly Met Glu Ala Asp Met Pro Asp Glu Ile
60 65 70 75

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Asn Ile Asp Glu Leu Leu Glu Leu Glu Ser Glu Glu Glu Arg Ser Arg
76 81 86 91

aaa atc cag gga ctc ctg aag tca tgt ggg aaa cct gtc gag gac ttc 398
Lys Ile Gln Gly Leu Leu Lys Ser Cys Gly Lys Pro Val Glu Asp Phe
92 97 102 107

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Ile Gln Glu Leu Leu Ala Lys Leu Gln Gly Leu His Arg Gln Pro Gly
108 113 118 123

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124 129 134 139

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Ser	Val	Leu	Ile	Gly	Ser	Asp	Ile	Ala	Asp	Lys	Leu	Tyr	Ala	Leu	Asn		
232					237					242					247		
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Pro	Leu	Gln	Thr	Leu	Phe	Ala	Cys	Val	Ser	Pro	Val	Glu	Asp	Ala	Gly		
264					269					274					279		
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Gln	Glu	Arg	Leu	Leu	Pro	Ala	Pro	Ser	Ser	Arg	Ser	Phe	Ile	Gln	Glu		
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Leu	Lys	Asp	Leu	Cys	Lys	Glu	Asn	Tyr	Lys	Thr	Leu	Leu	Lys	Glu	Ile		
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Asp	Asp	Ala	Asn	Lys	Trp	Lys	His	Ile	Pro	Cys	Ser	Trp	Met	Gly	Arg		
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Ile	Asn	Val	Lys	Met	Thr	Met	Leu	Pro	Lys	Ala	Ile	Tyr	Lys	Phe	Asn		
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Ala	Ile	Pro	Ile	Lys	Ile	Pro	Pro	Ser	Phe	Phe	Thr	Glu	Leu	Glu	Lys		
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aca	att	cta	aaa	ttc	ata	tgg	aac	caa	aaa	aga	gcc	cac	att	gtc	aaa		1373
Thr	Ile	Leu	Lys	Phe	Ile	Trp	Asn	Gln	Lys	Arg	Ala	His	Ile	Val	Lys		
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Phe	Lys	Arg	Tyr	Tyr	Lys	Ala	Thr	Val	Thr	Lys	Thr	Ala	Trp	Tyr	Trp		
424					429					434					439		
tat	aga	aat	agg	cgc	ata	gac	caa	tgg	aac	aga	ata	gag	aac	cca	gaa		1517
Tyr	Arg	Asn	Arg	Arg	Ile	Asp	Gln	Trp	Asn	Arg	Ile	Glu	Asn	Pro	Glu		

440	445	450	455	
ata aac cca aat act tac agc caa ctg atc ttt gac aaa gca aac aaa				1565
Ile Asn Pro Asn Thr Tyr Ser Gln Leu Ile Phe Asp Lys Ala Asn Lys				
456	461	466	471	
aac ata aac cag gga agg gac acc ctt ttc aac aga tgg tgc tgg gat				1613
Asn Ile Asn Gln Gly Arg Asp Thr Leu Phe Asn Arg Trp Cys Trp Asp				
472	477	482	487	
aat tgg cta gcc aca tgt agg aga atg aaa ctg gat tct cat ctc tca				1661
Asn Trp Leu Ala Thr Cys Arg Arg Met Lys Leu Asp Ser His Leu Ser				
488	493	498	503	
cct tat ata aaa atc aac tcg atg gat taa				1691
Pro Tyr Ile Lys Ile Asn Ser Met Asp *				
504	509			

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	Met Ala Leu Ala Arg Pro			
	1			
gtg cgg ctc ttt tcc ctc gtg act cgg ttg ctc ctg gcg ccg cga cgg				100
Val Arg Leu Phe Ser Leu Val Thr Arg Leu Leu Leu Ala Pro Arg Arg				
7	12	17	22	
ggc ctc acg gtc cgc agt ccc gac gaa ccc ctg ccg gtg gtg cgc atc				148
Gly Leu Thr Val Arg Ser Pro Asp Glu Pro Leu Pro Val Val Arg Ile				
23	28	33	38	
cca gtg gct cta cag cgg cag ttg gaa cag cgg cag agc agg cgg cgg				196
Pro Val Ala Leu Gln Arg Gln Leu Glu Gln Arg Gln Ser Arg Arg Arg				
39	44	49	54	
aac ctc ccg agg ccg gtg ctg gtt cga ccc gga ccg ctg ctg gtt tcg				244
Asn Leu Pro Arg Pro Val Leu Val Arg Pro Gly Pro Leu Leu Val Ser				
55	60	65	70	
gcg cgg cgg ccg gag ttg aac cag ccg gcg cgc ctc aca ctg ggc cgt				292
Ala Arg Arg Pro Glu Leu Asn Gln Pro Ala Arg Leu Thr Leu Gly Arg				
71	76	81	86	
tgg gag cgc gcg ccg cta gcc tct caa ggc tgg aag agt cga cgc gcg				340



Trp	Glu	Arg	Ala	Pro	Leu	Ala	Ser	Gln	Gly	Trp	Lys	Ser	Arg	Arg	Ala		
87					92					97					102		
cgt	cgg	gac	cac	ttc	tcc	atc	gag	cgc	gcg	caa	cag	gag	gcg	cca	gcg		388
Arg	Arg	Asp	His	Phe	Ser	Ile	Glu	Arg	Ala	Gln	Gln	Glu	Ala	Pro	Ala		
103					108					113					118		
gtg	cga	aag	ctc	tcg	tct	aag	ggc	agc	ttt	gct	gac	ctg	ggc	ctg	gag		436
Val	Arg	Lys	Leu	Ser	Ser	Lys	Gly	Ser	Phe	Ala	Asp	Leu	Gly	Leu	Glu		
119					124					129					134		
ccc	cgt	gtg	ctg	cac	gca	cta	cag	gag	gct	gcg	cct	gaa	gtc	gtt	cag		484
Pro	Arg	Val	Leu	His	Ala	Leu	Gln	Glu	Ala	Ala	Pro	Glu	Val	Val	Gln		
135					140					145					150		
ccc	aca	acc	gtg	cag	tct	agc	acc	atc	ccc	tca	cta	ctt	cgc	ggc	cgc		532
Pro	Thr	Thr	Val	Gln	Ser	Ser	Thr	Ile	Pro	Ser	Leu	Leu	Arg	Gly	Arg		
151					156					161					166		
cat	gtc	gtt	tgc	gcc	gca	gaa	acc	ggc	agt	ggc	aag	act	ctc	agc	tac		580
His	Val	Val	Cys	Ala	Ala	Glu	Thr	Gly	Ser	Gly	Lys	Thr	Leu	Ser	Tyr		
167					172					177					182		
ctc	ctg	ccg	ctg	ctt	caa	cgg	ctc	ttg	ggc	cag	cca	agc	ctg	gac	tcc		628
Leu	Leu	Pro	Leu	Leu	Gln	Arg	Leu	Leu	Gly	Gln	Pro	Ser	Leu	Asp	Ser		
183					188					193					198		
ctt	cct	atc	ccc	gcg	ccc	cga	ggc	ctg	gtc	ctt	gtt	cct	tcc	cga	gaa		676
Leu	Pro	Ile	Pro	Ala	Pro	Arg	Gly	Leu	Val	Leu	Val	Pro	Ser	Arg	Glu		
199					204					209					214		
ttg	gcc	caa	cag	gtg	cgg	gct	gtg	gcc	caa	ccc	ttg	ggc	cgc	tcc	ttg		724
Leu	Ala	Gln	Gln	Val	Arg	Ala	Val	Ala	Gln	Pro	Leu	Gly	Arg	Ser	Leu		
215					220					225					230		
ggc	ctg	ctg	gtg	cgg	gac	ctg	gag	gga	ggc	cac	ggc	atg	cgt	agg	atc		772
Gly	Leu	Leu	Val	Arg	Asp	Leu	Glu	Gly	Gly	His	Gly	Met	Arg	Arg	Ile		
231					236					241					246		
agg	ctg	cag	ctg	tcc	aga	cag	cct	tca	gca	gat	gtg	ctt	gtg	gcc	act		820
Arg	Leu	Gln	Leu	Ser	Arg	Gln	Pro	Ser	Ala	Asp	Val	Leu	Val	Ala	Thr		
247					252					257					262		
cca	ggg	gct	ctg	tgg	aag	gcc	ctg	aaa	agt	cga	ctg	atc	agt	ctg	gag		868
Pro	Gly	Ala	Leu	Trp	Lys	Ala	Leu	Lys	Ser	Arg	Leu	Ile	Ser	Leu	Glu		
263					268					273					278		
caa	ctc	tcc	ttc	ttg	gtg	ttg	gat	gag	gca	gac	aca	ctg	ctg	gat	gaa		916
Gln	Leu	Ser	Phe	Leu	Val	Leu	Asp	Glu	Ala	Asp	Thr	Leu	Leu	Asp	Glu		
279					284					289					294		
agc	ttc	ctg	gaa	ctg	gtg	gac	tac	atc	tta	gag	aag	agc	cac	ata	gca		964
Ser	Phe	Leu	Glu	Leu	Val	Asp	Tyr	Ile	Leu	Glu	Lys	Ser	His	Ile	Ala		
295					300					305					310		
gaa	ggc	cca	gct	gac	ttg	gaa	gac	ccc	ttc	aat	ccc	aaa	gct	cag	tta		1012
Glu	Gly	Pro	Ala	Asp	Leu	Glu	Asp	Pro	Phe	Asn	Pro	Lys	Ala	Gln	Leu		

311	316	321	326	
gtg ctg gta gga gcc aca ttt ccc gaa ggt gta ggc cag ttg ctg aat				1060
Val Leu Val Gly Ala Thr Phe Pro Glu Gly Val Gly Gln Leu Leu Asn				
327	332	337	342	
aaa gtc gcc agc cca gat gct gtc acc acc atc acc agc tcc aag ctc				1108
Lys Val Ala Ser Pro Asp Ala Val Thr Thr Ile Thr Ser Ser Lys Leu				
343	348	353	358	
cac tgt atc atg cct cat gtg aaa cag aca ttt ctg aga ctg aag gga				1156
His Cys Ile Met Pro His Val Lys Gln Thr Phe Leu Arg Leu Lys Gly				
359	364	369	374	
gca gat aag gtg gcc gag ctg gtg cac atc ctc aag cat cgt gac aga				1204
Ala Asp Lys Val Ala Glu Leu Val His Ile Leu Lys His Arg Asp Arg				
375	380	385	390	
gca gaa agg act ggt ccc tca gga act gtt ctg gtg ttc tgt aat agc				1252
Ala Glu Arg Thr Gly Pro Ser Gly Thr Val Leu Val Phe Cys Asn Ser				
391	396	401	406	
tcc agc act gtg aac tgg ctg gga tat att ctg gat gac cac aaa atc				1300
Ser Ser Thr Val Asn Trp Leu Gly Tyr Ile Leu Asp Asp His Lys Ile				
407	412	417	422	
caa cac cta agg ttg cag ggg caa atg cca gcc ttg atg agg gta gga				1348
Gln His Leu Arg Leu Gln Gly Gln Met Pro Ala Leu Met Arg Val Gly				
423	428	433	438	
atc ttc cag tcc ttc cag aag agc tcc cga gac ata ctt ctc tgc aca				1396
Ile Phe Gln Ser Phe Gln Lys Ser Ser Arg Asp Ile Leu Leu Cys Thr				
439	444	449	454	
gac ata gcc tct cgg ggc ctg gac agc act ggt gtg gag ctg gtt gtc				1444
Asp Ile Ala Ser Arg Gly Leu Asp Ser Thr Gly Val Glu Leu Val Val				
455	460	465	470	
aat tat gat ttc ccc cca acg ctg caa gat tac atc cac aga gca ggg				1492
Asn Tyr Asp Phe Pro Pro Thr Leu Gln Asp Tyr Ile His Arg Ala Gly				
471	476	481	486	
aga gtg ggc cgt gtg ggg agc gag gtg cca ggc acc gtc atc agt ttt				1540
Arg Val Gly Arg Val Gly Ser Glu Val Pro Gly Thr Val Ile Ser Phe				
487	492	497	502	
gtg acc cat ccc tgg gat gtg agc ctg gtt cag aag att gag ctg gcg				1588
Val Thr His Pro Trp Asp Val Ser Leu Val Gln Lys Ile Glu Leu Ala				
503	508	513	518	
gct cgc cga agg aga agt ctt cca gga cta gca tcc tcg gtg aaa gag				1636
Ala Arg Arg Arg Arg Ser Leu Pro Gly Leu Ala Ser Ser Val Lys Glu				
519	524	529	534	
cct ttg ccc caa gca acc tga tt ttgacaaatc tgattaaaaat gtgatgctag				1689
Pro Leu Pro Gln Ala Thr *				
535	540			

aacagggatc tttcccagta tcttgagtgg gtgaccacac ttgtcagtgg gaggctctgg 1749  
 gctgccctgt cggctccttg agggcgggat gaactgcttt gtgacttgga aaggtagcgt 1809  
 gctggccagc attggagaag aagctgctga gcatggcttt ctgtagtctt tagcaagaca 1869  
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 gcaaaaaaaaa aaaa 1943

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 Met Glu Arg Thr Glu Met Met Pro Thr Ile Asn Ser Gln  
 1 5 10  
 ctg gaa ttt aaa agt aag cct ttt cct tta gtc tcc tct tcc cgg tgg 157  
 Leu Glu Phe Lys Ser Lys Pro Phe Pro Leu Val Ser Ser Ser Arg Trp  
 14 19 24 29  
 ttg gta aaa aga ggt gaa ttg aca gcc tat gtt gaa gac act gtg ctt 205  
 Leu Val Lys Arg Gly Glu Leu Thr Ala Tyr Val Glu Asp Thr Val Leu  
 30 35 40 45  
 ttc tca aga agg aca tcc aaa cag caa gtc tac ttc ttt ctc ttt aac 253  
 Phe Ser Arg Arg Thr Ser Lys Gln Gln Val Tyr Phe Phe Leu Phe Asn  
 46 51 56 61  
 gat gtg ctc att atc acc aag aag aag agt gaa gaa agt tac aac gtc 301  
 Asp Val Leu Ile Ile Thr Lys Lys Lys Ser Glu Glu Ser Tyr Asn Val  
 62 67 72 77  
 aat gat tat tcc tta aga gat cag cta ttg gtg gaa tct tgt gac aat 349  
 Asn Asp Tyr Ser Leu Arg Asp Gln Leu Leu Val Glu Ser Cys Asp Asn  
 78 83 88 93  
 gaa gag ctt aat tct tct cca ggg aag aac agc tcc aca atg ctc tat 397  
 Glu Glu Leu Asn Ser Ser Pro Gly Lys Asn Ser Ser Thr Met Leu Tyr  
 94 99 104 109  
 tca aga cag agc tct gcc agt cac ctc ttt act ctg aca gtc ctt agt 445  
 Ser Arg Gln Ser Ser Ala Ser His Leu Phe Thr Leu Thr Val Leu Ser  
 110 115 120 125

aac cac gcg aat gag aaa gtg gag atg cta cta gga gct gag acg cag	493
Asn His Ala Asn Glu Lys Val Glu Met Leu Leu Gly Ala Glu Thr Gln	
126 131 136 141	
agc gag cga gcc cgc tgg ata act gcc ctg gga cac agc agc ggg aag	541
Ser Glu Arg Ala Arg Trp Ile Thr Ala Leu Gly His Ser Ser Gly Lys	
142 147 152 157	
ccg cct gca gac cga acc tca ctg acc cag gtg gaa atc gtt agg tca	589
Pro Pro Ala Asp Arg Thr Ser Leu Thr Gln Val Glu Ile Val Arg Ser	
158 163 168 173	
ttt act gct aag cag cca gat gaa ctc tcc ctg cag gtg gct gac gtc	637
Phe Thr Ala Lys Gln Pro Asp Glu Leu Ser Leu Gln Val Ala Asp Val	
174 179 184 189	
gtc ctc atc tat caa cgt gtc agc gat ggc tgg tat gag ggg gaa cga	685
Val Leu Ile Tyr Gln Arg Val Ser Asp Gly Trp Tyr Glu Gly Glu Arg	
190 195 200 205	
cta cga gat gga gaa aga ggc tgg ttt cct atg gaa tgt gcc aag gag	733
Leu Arg Asp Gly Glu Arg Gly Trp Phe Pro Met Glu Cys Ala Lys Glu	
206 211 216 221	
ata aca tgt caa gct aca att gat aag aat gtg gag aga atg gga cgc	781
Ile Thr Cys Gln Ala Thr Ile Asp Lys Asn Val Glu Arg Met Gly Arg	
222 227 232 237	
ttg cta gga ctg gag acc aac gtg tag tctct cagatgggtct tttgttactg	833
Leu Leu Gly Leu Glu Thr Asn Val *	
238 243	
caagatttgc acgacactta ccgggctggg tggttctggg ctagttttat tgtaaatttt	893
gtcacagcct atttaattaa aagaacgaaa acacttgcct ttaagcttgc caggttggtc	953
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 ttgaacctg cttcgacgtg tgtgtcatgg cttaaaaata gctgctaata tgtcaacctg 180  
 tcttgggcag aaacagcggc ggcgacagca gcaggagcgt catggccgtg gcgctgtctg 240  
 cgccggcgat ccgcctttcg gactgaggcc cagcgcagcg cttgcaaaga gagccaaaga 300  
 gctgagcaaa aggagctgct gcagcttgaa gaaaaagcca cccctgaagg ctcttgccag 360  
 agccaggctt accttctctc cctcgagaat cttctccga aggaccagcc cagggaaggg 420  
 aagcagctgc tctggactca ctcaagtgtg tctcacatcc tttctcttc cagcagcagc 480  
 tacctggcaa ctgaacccat catcaccaca gccactcctg cagctgccac ggtttctgcc 540  
 acctctaag atg tgc cct ggt aac tgg ctt tgg gct tct atg act ttt 588  
 Met Cys Pro Gly Asn Trp Leu Trp Ala Ser Met Thr Phe  
 1 5 10  
 atg gcc cgc ttc tcc cgg agt agc tca agg tct cct gtt cga act cga 636  
 Met Ala Arg Phe Ser Arg Ser Ser Ser Arg Ser Pro Val Arg Thr Arg  
 14 19 24 29  
 ggg acc ctg gag gag atg cca acc gtt caa cat cct ttc ctc aat gtc 684  
 Gly Thr Leu Glu Glu Met Pro Thr Val Gln His Pro Phe Leu Asn Val  
 30 35 40 45  
 ttc gag ttg gag cgg ctc ctc tac aca ggc aag aca gcc tgt aac cat 732  
 Phe Glu Leu Glu Arg Leu Leu Tyr Thr Gly Lys Thr Ala Cys Asn His



ctttccactc caagcacagg aggaggtagc tagcgtgtga gggttggcac taggcccacg 1757  
gctgctgctt gggccaaaaa catacagagg tgcattggctg gcagtcttga aattgtcact 1817  
cgcttactgg atccaagcgt ctcgaggata aataaagatc atgaaaaaga aaaaaaaaaa 1877  
a 1878

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<212> DNA  
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<222> (163) .. (1092)

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tttagtggtc agtagcagcg gggatagccc ggggcccggg gt atg gcc acg gag 174  
Met Ala Thr Glu  
1  
tta cag tgt ccg gac tcc atg ccc tgt cac aac cag caa gta aac tct 222  
Leu Gln Cys Pro Asp Ser Met Pro Cys His Asn Gln Gln Val Asn Ser  
5 10 15 20  
gcc tca acc cca agt ccc gag cag ctg cga cct ggc gat ctg atc ctg 270  
Ala Ser Thr Pro Ser Pro Glu Gln Leu Arg Pro Gly Asp Leu Ile Leu  
21 26 31 36  
gac cac gca ggg gga aac aga gcc tcc agg gcc aag gtg att ctc ctc 318  
Asp His Ala Gly Gly Asn Arg Ala Ser Arg Ala Lys Val Ile Leu Leu  
37 42 47 52  
acg ggg tac gcc cat tct agc ctg ccg gcc gag ctg gac tct ggg gcc 366  
Thr Gly Tyr Ala His Ser Ser Leu Pro Ala Glu Leu Asp Ser Gly Ala  
53 58 63 68  
tgc ggc ggc tcc agc ctc aac tca gag ggc aac agt ggt agt ggt gac 414  
Cys Gly Gly Ser Ser Leu Asn Ser Glu Gly Asn Ser Gly Ser Gly Asp  
69 74 79 84  
agt agc agc tat gac gca cca gct ggc aac tcc ttc cta gag gac tgc 462  
Ser Ser Ser Tyr Asp Ala Pro Ala Gly Asn Ser Phe Leu Glu Asp Cys  
85 90 95 100  
gaa ctc tcc cgg cag atc ggg gcg cag ctt aag ctg ctg cct atg aat 510  
Glu Leu Ser Arg Gln Ile Gly Ala Gln Leu Lys Leu Leu Pro Met Asn  
101 106 111 116

gat cag ata cgg gag cta cag acc atc atc cgg gac aag aca gcc agt	558
Asp Gln Ile Arg Glu Leu Gln Thr Ile Ile Arg Asp Lys Thr Ala Ser	
117 122 127 132	
aga ggt gac ttc atg ttt tct gcg gat cgt ttg atc aga ctt gtt gtg	606
Arg Gly Asp Phe Met Phe Ser Ala Asp Arg Leu Ile Arg Leu Val Val	
133 138 143 148	
gaa gag gga ttg aat cag ctg cca tat aaa gaa tgc atg gtg acc act	654
Glu Glu Gly Leu Asn Gln Leu Pro Tyr Lys Glu Cys Met Val Thr Thr	
149 154 159 164	
cca aca ggg tac aag tat gaa gga gtg aaa ttt gag aag gga aat tgt	702
Pro Thr Gly Tyr Lys Tyr Glu Gly Val Lys Phe Glu Lys Gly Asn Cys	
165 170 175 180	
ggg gtc agc ata atg aga agc ggt gag gca atg gaa caa ggt tta cga	750
Gly Val Ser Ile Met Arg Ser Gly Glu Ala Met Glu Gln Gly Leu Arg	
181 186 191 196	
gac tgc tgt cga tcc ata cga att gga aag atc ctg att cag agt gat	798
Asp Cys Cys Arg Ser Ile Arg Ile Gly Lys Ile Leu Ile Gln Ser Asp	
197 202 207 212	
gag gag aca caa aga gcc aaa gta tat tat gcc aaa ttc ccc cca gac	846
Glu Glu Thr Gln Arg Ala Lys Val Tyr Tyr Ala Lys Phe Pro Pro Asp	
213 218 223 228	
att tac cgg aga aaa gtc ctt ctg atg tat cca att ctc agc act gga	894
Ile Tyr Arg Arg Lys Val Leu Leu Met Tyr Pro Ile Leu Ser Thr Gly	
229 234 239 244	
aat act gta att gaa gct gta aag gtt ctt ata gaa cat gga gtt caa	942
Asn Thr Val Ile Glu Ala Val Lys Val Leu Ile Glu His Gly Val Gln	
245 250 255 260	
ccc agt gtt atc atc cta ctc agt ctg ttc tcc act cct cat ggt gcc	990
Pro Ser Val Ile Ile Leu Leu Ser Leu Phe Ser Thr Pro His Gly Ala	
261 266 271 276	
aaa tca atc att cag gag ttt cca gag atc aca att tta act act gaa	1038
Lys Ser Ile Ile Gln Glu Phe Pro Glu Ile Thr Ile Leu Thr Thr Glu	
277 282 287 292	
gtt cat cct gtt gca cct aca cat ttt gga cag aaa tac ttt gga aca	1086
Val His Pro Val Ala Pro Thr His Phe Gly Gln Lys Tyr Phe Gly Thr	
293 298 303 308	
gac taa gttatttaag taaaataatt gtcttatgta atattacaat catgttttga	1142
Asp *	
309	
ttttctatatt gttttactga ttcacttgag ggtggcagag aaaaatgtgt taaaatgctt	1202
tttagttttg gaagtgggta tatttgaggt tatatctcat ttagttatatt gttttactgtt	1262



ggcaccgaat tcaacaatga agtatatgca actcttaciaa aacataaaatt ttaataatat 1322  
tctaatagcaa attactgaac cctcagtga ttaaaattat ttcctaattt atgagcctct 1382  
tagtttggag gttgcttgaa gccacaaata aaactcaaag gagagtcagt tctttgtccc 1442  
actgtagttt gcattttgtt tagtttggtt ttagctctac taaggtttca catatgtggc 1502  
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agaggatcca t 1573

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<212> DNA  
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<220>  
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<222> (8)..(2908)

<400> 400

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1 5 10

cag tta gtg ctg tgc tca gag gat gat cga ctt ccc gtg att cag ctg 97  
Gln Leu Val Leu Cys Ser Glu Asp Asp Arg Leu Pro Val Ile Gln Leu  
15 20 25 30

tgg gac ttg cgc ttt gcc tcc tcg ccc ttg aag gtg ctg gag agc cac 145  
Trp Asp Leu Arg Phe Ala Ser Ser Pro Leu Lys Val Leu Glu Ser His  
31 36 41 46

agc agg ggg atc ttg tca gtg tca tgg agc cag gct gat gct gag ctg 193  
Ser Arg Gly Ile Leu Ser Val Ser Trp Ser Gln Ala Asp Ala Glu Leu  
47 52 57 62

ctg ctc act agt gct aag gac agc cag atc ttg tgc cgg aac ctg ggg 241  
Leu Leu Thr Ser Ala Lys Asp Ser Gln Ile Leu Cys Arg Asn Leu Gly  
63 68 73 78

agc agt gag gtg gta tat aag cta cca aca cag agc agc tgg tgc ttt 289  
Ser Ser Glu Val Val Tyr Lys Leu Pro Thr Gln Ser Ser Trp Cys Phe  
79 84 89 94

gat gtg cag tgg tgc cct cgg gac cct tca gtg ttc tct gct gcc tcc 337  
Asp Val Gln Trp Cys Pro Arg Asp Pro Ser Val Phe Ser Ala Ala Ser  
95 100 105 110

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His Thr Thr Lys Glu Ala Ser Ala Ser Ser Ala Phe Phe Asp Glu Leu	
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Val Pro Gln Asn Met Thr Pro Trp Glu Ile Pro Ile Thr Lys Asp Ile	
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Val Glu Leu Cys Leu	Lys Glu Glu Arg Phe	Ala Asp Ala Ile Ile Leu	
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gcc cag gct ggg ggt	aca gat ctg ctg aag	caa aca cag gag cgc tac	1201
Ala Gln Ala Gly Gly	Thr Asp Leu Leu Lys	Gln Thr Gln Glu Arg Tyr	
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Leu Ala Lys Lys Lys	Thr Lys Ile Ser Ser	Leu Leu Ala Cys Val Val	
399	404	409	414
caa aag aat tgg aag	gat gtg gtg tgt acc	tgt agc ctg aag aac tgg	1297
Gln Lys Asn Trp Lys	Asp Val Val Cys Thr	Cys Ser Leu Lys Asn Trp	
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aga gag gca ctg gct	ttg cta ctg aca tac	tca ggc aca gag aaa ttt	1345
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Gln Pro Ser His Gln Val Pro Thr Pro Ser Pro Arg Pro Arg Val Phe				
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Asn Pro Val Gly Phe Pro Gly Thr Trp Pro Leu Pro Gly Ser Pro Leu				
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Glu Thr Pro Arg Leu Phe Pro Leu Leu Pro Leu Arg Pro Leu Gly Pro				
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Thr Thr Gly Ile Leu Thr Pro His Pro Gly Pro Gln Asp Ser Trp Lys				
767	772	777	782	
gaa gcc cca gcc ccc agg gga aac ctc cag agg aac aag ctg cca gag				2401
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Ser Phe Ser Glu Val Ser Ser Phe Met Pro Ile Leu Lys Ala Val Leu	
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Ile Ile Ala His Lys Leu Leu Val *	
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ctcagagagg tcac atg gct tgc tgc agg ccc ccc agc cag tgt gaa ccc 170
Met Ala Cys Ser Arg Pro Pro Ser Gln Cys Glu Pro
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Thr Ser Leu Pro Pro Gly Pro Pro Ala Gly Arg Arg His Leu Pro Leu
13 18 23 28
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Ser Arg Arg Arg Arg Glu Met Ser Ser Asn Lys Glu Gln Arg Ser Ala
29 34 39 44
gtg ttc gtg atc ctc ttt gcc ctc atc acc atc ctc atc ctc tac agc 314
Val Phe Val Ile Leu Phe Ala Leu Ile Thr Ile Leu Ile Leu Tyr Ser
45 50 55 60
tcc aac agt gcc aat gag gtc ttc cat tac ggc tcc ctg cgg ggc cgt 362
Ser Asn Ser Ala Asn Glu Val Phe His Tyr Gly Ser Leu Arg Gly Arg
61 66 71 76
agc cgc cga cct gtc aac ctc aag aag tgg agc atc act gac ggc tat 410
Ser Arg Arg Pro Val Asn Leu Lys Lys Trp Ser Ile Thr Asp Gly Tyr
77 82 87 92

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93 98 103 108	
gtg att gtc agc agc tcc agc cac ctg ctg ggc acc aag ctg ggc cct	506
Val Ile Val Ser Ser Ser Ser His Leu Leu Gly Thr Lys Leu Gly Pro	
109 114 119 124	
gag atc gag cgg gct gag tgt aca atc cgc atg aat gat gca ccc acc	554
Glu Ile Glu Arg Ala Glu Cys Thr Ile Arg Met Asn Asp Ala Pro Thr	
125 130 135 140	
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Thr Gly Tyr Ser Ala Asp Val Gly Asn Lys Thr Thr Tyr Arg Val Val	
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Arg Gln Phe Asp Asp Leu Phe Arg Gly Glu Thr Gly Lys Asp Arg Glu	
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2697

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7 12 17 22

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Val	Ser	Cys	Lys	Val	Ser	Gly	Tyr	Thr	Leu	Thr	Glu	Leu	Ser	Met	His
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Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Met	Gly	Ala	Phe
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Asp	Pro	Glu	Asp	Gly	Glu	Thr	Ile	Tyr	Ala	Gln	Lys	Phe	Gln	Gly	Arg
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103 108 113 118

Val	Gly	Arg	Cys	Ser	Ser	Thr	Ser	Cys	Tyr	His	Pro	Leu	Gly	Tyr	Trp
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Val Glu Glu Gly Leu Leu Glu Arg His Ser Asn Gly Ser Gln Ser Gln				
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cac agc cgt ctg acc ctg ccc agg tcc ttg tgg aac gcg ggg acc tcc	1325
His Ser Arg Leu Thr Leu Pro Arg Ser Leu Trp Asn Ala Gly Thr Ser	
375 380 385 390	
gtc acc tgc aca ctg aac cat ccc agc ctc cca ccc cag agg ttg atg	1373
Val Thr Cys Thr Leu Asn His Pro Ser Leu Pro Pro Gln Arg Leu Met	
391 396 401 406	
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Ala Leu Arg Glu Pro Ala Ala Gln Ala Pro Val Lys Leu Ser Leu Asn	
407 412 417 422	
ctg ctg gcc tcg tct gac cct ccc gag gcg gcc tcg tgg ctc ctg tgt	1469
Leu Leu Ala Ser Ser Asp Pro Pro Glu Ala Ala Ser Trp Leu Leu Cys	
423 428 433 438	
gag gtg tct ggc ttc tcg ccc ccc aac atc ctc ctg atg tgg ctg gag	1517
Glu Val Ser Gly Phe Ser Pro Pro Asn Ile Leu Leu Met Trp Leu Glu	
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Asp Gln Arg Glu Val Asn Thr Ser Gly Phe Ala Pro Ala Arg Pro Pro	
455 460 465 470	
cca cag ccc agg agc acc acg ttc tgg gcc tgg agt gtg ctg cgt gtc	1613
Pro Gln Pro Arg Ser Thr Thr Phe Trp Ala Trp Ser Val Leu Arg Val	
471 476 481 486	
cca gcc ccg ccc agc cct cag cca gcc acc tac acg tgt gtg gtc agc	1661
Pro Ala Pro Pro Ser Pro Gln Pro Ala Thr Tyr Thr Cys Val Val Ser	
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His Glu Asp Ser Arg Thr Leu Leu Asn Ala Ser Arg Ser Leu Glu Val	
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agc tat gta aca gac cat ggc ccc atg aaa tga tcccggac cagatccgtc	1760
Ser Tyr Val Thr Asp His Gly Pro Met Lys *	
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[illegible]

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200 205 210 215	
cca ttt agc tac aaa aat gtg ctc agt ctt act aat aaa gga gaa gta	844
Pro Phe Ser Tyr Lys Asn Val Leu Ser Leu Thr Asn Lys Gly Glu Val	
216 221 226 231	
ttt aat gaa ctt gtt gga aaa cag cgc ata tct gga aat ttg gat tct	892
Phe Asn Glu Leu Val Gly Lys Gln Arg Ile Ser Gly Asn Leu Asp Ser	
232 237 242 247	
cca gaa ggt ggt ttc gat gcc atc atg caa gtt gca gtt tgt gga tca	940
Pro Glu Gly Gly Phe Asp Ala Ile Met Gln Val Ala Val Cys Gly Ser	
248 253 258 263	
ctg att ggc tgg agg aat gtt aca cgg ctg ctg gtg ttt tcc aca gat	988
Leu Ile Gly Trp Arg Asn Val Thr Arg Leu Leu Val Phe Ser Thr Asp	
264 269 274 279	
gcc ggg ttt cac ttt gct gga gat ggg aaa ctt ggt ggc att gtt tta	1036
Ala Gly Phe His Phe Ala Gly Asp Gly Lys Leu Gly Gly Ile Val Leu	
280 285 290 295	
cca aat gat gga caa tgt cac ctg gaa aat aat atg tac aca atg agc	1084
Pro Asn Asp Gly Gln Cys His Leu Glu Asn Asn Met Tyr Thr Met Ser	
296 301 306 311	
cat tat tat gat tat cct tct att gct cac ctt gtc cag aaa ctg agt	1132
His Tyr Tyr Asp Tyr Pro Ser Ile Ala His Leu Val Gln Lys Leu Ser	
312 317 322 327	
gaa aat aat att cag aca att ttt gca gtt act gaa gaa ttt cag cct	1180
Glu Asn Asn Ile Gln Thr Ile Phe Ala Val Thr Glu Glu Phe Gln Pro	
328 333 338 343	
gtt tac aag gag ctg aaa aac ttg atc cct aag tca gca gta gga aca	1228
Val Tyr Lys Glu Leu Lys Asn Leu Ile Pro Lys Ser Ala Val Gly Thr	
344 349 354 359	
tta tct gca aat tct agc aat gta att cag ttg atc att gat gca tac	1276
Leu Ser Ala Asn Ser Ser Asn Val Ile Gln Leu Ile Ile Asp Ala Tyr	
360 365 370 375	
aat tcc ctt tcc tca gaa gtc att ttg gaa aac ggc aaa ttg tca gaa	1324
Asn Ser Leu Ser Ser Glu Val Ile Leu Glu Asn Gly Lys Leu Ser Glu	
376 381 386 391	
gga gta aca ata agt tac aaa tct tac tgc aag aac ggc gtg aat gga	1372
Gly Val Thr Ile Ser Tyr Lys Ser Tyr Cys Lys Asn Gly Val Asn Gly	
392 397 402 407	
aca ggg gaa aat gga aga aaa tgt tcc aat att tcc att gga gat gag	1420
Thr Gly Glu Asn Gly Arg Lys Cys Ser Asn Ile Ser Ile Gly Asp Glu	
408 413 418 423	
gtt caa ttt gaa att agc ata act tca aat aag tgt cca aaa aag gat	1468

Val	Gln	Phe	Glu	Ile	Ser	Ile	Thr	Ser	Asn	Lys	Cys	Pro	Lys	Lys	Asp	
424					429					434					439	
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Ser	Asp	Ser	Phe	Lys	Ile	Arg	Pro	Leu	Gly	Phe	Thr	Glu	Glu	Val	Glu	
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ggt	att	ctt	cag	tac	atc	tgt	gaa	tgt	gaa	tgc	caa	agc	gaa	ggc	atc	1564
Val	Ile	Leu	Gln	Tyr	Ile	Cys	Glu	Cys	Glu	Cys	Gln	Ser	Glu	Gly	Ile	
456					461					466					471	
cct	gaa	agt	ccc	aag	tgt	cat	gaa	gga	aat	ggg	aca	ttt	gag	tgt	ggc	1612
Pro	Glu	Ser	Pro	Lys	Cys	His	Glu	Gly	Asn	Gly	Thr	Phe	Glu	Cys	Gly	
472					477					482					487	
gcg	tgc	agg	tgc	aat	gaa	ggg	cgt	gtt	ggt	aga	cat	tgt	gaa	tgc	agc	1660
Ala	Cys	Arg	Cys	Asn	Glu	Gly	Arg	Val	Gly	Arg	His	Cys	Glu	Cys	Ser	
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Thr	Asp	Glu	Val	Asn	Ser	Glu	Asp	Met	Asp	Ala	Tyr	Cys	Arg	Lys	Glu	
504					509					514					519	
aac	agt	tca	gaa	atc	tgc	agt	aac	aat	gga	gag	tgc	gtc	tgc	gga	cag	1756
Asn	Ser	Ser	Glu	Ile	Cys	Ser	Asn	Asn	Gly	Glu	Cys	Val	Cys	Gly	Gln	
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tgt	gtt	tgt	agg	aag	agg	gat	aat	aca	aat	gaa	att	tat	tct	ggc	aaa	1804
Cys	Val	Cys	Arg	Lys	Arg	Asp	Asn	Thr	Asn	Glu	Ile	Tyr	Ser	Gly	Lys	
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ttc	tgc	gag	tgt	gat	aat	ttc	aac	tgt	gat	aga	tcc	aat	ggc	tta	att	1852
Phe	Cys	Glu	Cys	Asp	Asn	Phe	Asn	Cys	Asp	Arg	Ser	Asn	Gly	Leu	Ile	
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Cys	Gly	Gly	Asn	Gly	Val	Cys	Lys	Cys	Arg	Val	Cys	Glu	Cys	Asn	Pro	
568					573					578					583	
aac	tac	act	ggc	agt	gca	tgt	gac	tgt	tct	ttg	gat	act	agt	act	tgt	1948
Asn	Tyr	Thr	Gly	Ser	Ala	Cys	Asp	Cys	Ser	Leu	Asp	Thr	Ser	Thr	Cys	
584					589					594					599	
gaa	gcc	agc	aac	gga	cag	atc	tgc	aat	ggc	cgg	ggc	atc	tgc	gag	tgt	1996
Glu	Ala	Ser	Asn	Gly	Gln	Ile	Cys	Asn	Gly	Arg	Gly	Ile	Cys	Glu	Cys	
600					605					610					615	
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Gly	Val	Cys	Lys	Cys	Thr	Asp	Pro	Lys	Phe	Gln	Gly	Gln	Thr	Cys	Glu	
616					621					626					631	
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Met	Cys	Gln	Thr	Cys	Leu	Gly	Val	Cys	Ala	Glu	His	Lys	Glu	Cys	Val	
632					637					642					647	
cag	tgc	aga	gcc	ttc	aat	aaa	gga	gaa	aag	aaa	gac	aca	tgc	aca	cag	2140
Gln	Cys	Arg	Ala	Phe	Asn	Lys	Gly	Glu	Lys	Lys	Asp	Thr	Cys	Thr	Gln	

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Glu Cys Ser Tyr Phe Asn Ile Thr Lys Val Glu Ser Arg Asp Lys Leu				
664	669	674	679	
ccc cag ccg gtc caa cct gat cct gtg tcc cat tgt aag gag aag gat				2236
Pro Gln Pro Val Gln Pro Asp Pro Val Ser His Cys Lys Glu Lys Asp				
680	685	690	695	
gtt gac gac tgt tgg ttc tat ttt acg tat tca gtg aat ggg aac aac				2284
Val Asp Asp Cys Trp Phe Tyr Phe Thr Tyr Ser Val Asn Gly Asn Asn				
696	701	706	711	
gag gtc atg gtt cat gtt gtg gag aat cca gag tgt ccc act ggt cca				2332
Glu Val Met Val His Val Val Glu Asn Pro Glu Cys Pro Thr Gly Pro				
712	717	722	727	
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Asp Ile Ile Pro Ile Val Ala Gly Val Val Ala Gly Ile Val Leu Ile				
728	733	738	743	
ggc ctt gca tta ctg ctg ata tgg aag ctt tta atg ata att cat gac				2428
Gly Leu Ala Leu Leu Leu Ile Trp Lys Leu Leu Met Ile Ile His Asp				
744	749	754	759	
aga agg gag ttt gct aaa ttt gaa aag gag aaa atg aat gcc aaa tgg				2476
Arg Arg Glu Phe Ala Lys Phe Glu Lys Glu Lys Met Asn Ala Lys Trp				
760	765	770	775	
gac acg ggt gaa aat cct att tat aag agt gcc gta aca act gtg gtc				2524
Asp Thr Gly Glu Asn Pro Ile Tyr Lys Ser Ala Val Thr Thr Val Val				
776	781	786	791	
aat ccg aag tat gag gga aaa tga gtactgcccg tgcaaattccc acaacactga				2578
Asn Pro Lys Tyr Glu Gly Lys *				
792	797			
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caagtatggt gagagttgct ggtgtaaaat acgtttgaaa tagttgatct acaaaggcca				3118
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tagttcgta gtcaaaacgt gaaaaaaaaag acctgctttg ccctgggaaa tagtaacct 180
gccaaatata tcagcttgta ggagacagag gatgtg atg gag ctg ctt gaa gaa 234
Met Glu Leu Leu Glu Glu
1
gat ctc aca tgc cct att tgt tgt agt ctg ttt gat gat cca cgg gtt 282
Asp Leu Thr Cys Pro Ile Cys Cys Ser Leu Phe Asp Asp Pro Arg Val
7 12 17 22
ttg cct tgc tcc cac aac ttc tgc aaa aaa tgc tta gaa ggt atc tta 330
Leu Pro Cys Ser His Asn Phe Cys Lys Lys Cys Leu Glu Gly Ile Leu
23 28 33 38

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gaa ggg agt gtg cgg aat tcc ttg tgg aga cca gct cca ttc aag tgt	378
Glu Gly Ser Val Arg Asn Ser Leu Trp Arg Pro Ala Pro Phe Lys Cys	
39 44 49 54	
cct aca tgc cgt aag gaa act tca gct act gga att aat agc ctg cag	426
Pro Thr Cys Arg Lys Glu Thr Ser Ala Thr Gly Ile Asn Ser Leu Gln	
55 60 65 70	
gtt aat tac tcc ctg aag ggt att gtg gaa aag tat aac aag atc aag	474
Val Asn Tyr Ser Leu Lys Gly Ile Val Glu Lys Tyr Asn Lys Ile Lys	
71 76 81 86	
atc tct ccc aaa atg cca gta tgc aaa gga cac ttg ggg cag cct ctc	522
Ile Ser Pro Lys Met Pro Val Cys Lys Gly His Leu Gly Gln Pro Leu	
87 92 97 102	
aac att ttc tgc ctg act gat atg cag ctg att tgt ggg atc tgt gct	570
Asn Ile Phe Cys Leu Thr Asp Met Gln Leu Ile Cys Gly Ile Cys Ala	
103 108 113 118	
act cgt ggg gag cac acc aaa cat gtc ttc tgt tct att gaa gat gcc	618
Thr Arg Gly Glu His Thr Lys His Val Phe Cys Ser Ile Glu Asp Ala	
119 124 129 134	
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Tyr Ala Gln Glu Arg Asp Ala Phe Glu Ser Leu Phe Gln Ser Phe Glu	
135 140 145 150	
acc tgg cgt cgg gga gat gct ctt tct cgc ttg gat acc ttg gaa act	714
Thr Trp Arg Arg Gly Asp Ala Leu Ser Arg Leu Asp Thr Leu Glu Thr	
151 156 161 166	
agt aag agg aaa tcc cta cag tta ctg act aaa gat tca gat aaa gtg	762
Ser Lys Arg Lys Ser Leu Gln Leu Leu Thr Lys Asp Ser Asp Lys Val	
167 172 177 182	
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183 188 193 198	
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Glu Ile Leu Ser Asp Phe Glu Thr Met Lys Leu Ala Val Met Gln Ala	
199 204 209 214	
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Tyr Asp Pro Glu Ile Asn Lys Leu Asn Thr Ile Leu Gln Glu Gln Arg	
215 220 225 230	
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Met Ala Phe Asn Ile Ala Glu Ala Phe Lys Asp Val Ser Glu Pro Ile	
231 236 241 246	
gta ttt ctg caa cag atg cag gag ttt aga gag aaa atc aaa gta atc	1002
Val Phe Leu Gln Gln Met Gln Glu Phe Arg Glu Lys Ile Lys Val Ile	
247 252 257 262	
aag gaa act cct tta cct ccc tct aat ttg cct gca agc cct tta atg	1050

Lys Glu Thr Pro Leu Pro Pro Ser Asn Leu Pro Ala Ser Pro Leu Met	
263 268 273 278	
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Lys Asn Phe Asp Thr Ser Gln Trp Glu Asp Ile Lys Leu Val Asp Val	
279 284 289 294	
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295 300 305 310	
ccc tgg agc ttt tat aag tta ttt ttg cta atc ctt ctg ctt ggc ctt	1194
Pro Trp Ser Phe Tyr Lys Leu Phe Leu Leu Ile Leu Leu Leu Gly Leu	
311 316 321 326	
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Val Ile Val Phe Gly Pro Thr Met Phe Leu Glu Trp Ser Leu Phe Asp	
327 332 337 342	
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343 348 353 358	
act aaa aca gcc gat ttc ata gaa caa tca gtt ttt tac tgg gaa cag	1338
Thr Lys Thr Ala Asp Phe Ile Glu Gln Ser Val Phe Tyr Trp Glu Gln	
359 364 369 374	
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Val Thr Asp Gly Phe Phe Ile Phe Asn Glu Arg Phe Lys Asn Phe Thr	
375 380 385 390	
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Leu Val Val Leu Asn Asn Val Ala Glu Phe Val Cys Lys Tyr Lys Leu	
391 396 401 406	
tta taa aatcaaaaaa aaaaaaaggg gggggcccttt aaaaaaaaca aattttaata	1490
Leu *	
407	
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aatctttctt tgctttcccc atcttttctt cgcatttttt caccatcttt ccctcaatct      180
ccaggagcca atgcgagact ttggctccga ttaagcgacg gcccgagact tgggggtgcgc      240
gaggaggatc gacagagtgg tg atg gag agc acc cct tca agg gga ctg aac      292
                Met Glu Ser Thr Pro Ser Arg Gly Leu Asn
                  1                      5

cga gta cac cta caa tgc agg aat ctg cag gaa ttc tta ggg ggc ctg      340
Arg Val His Leu Gln Cys Arg Asn Leu Gln Glu Phe Leu Gly Gly Leu
  11                      16                      21                      26

agc cct ggg gta ttg gac cga ttg tat ggg cac cct gcc aca tgt ctg      388
Ser Pro Gly Val Leu Asp Arg Leu Tyr Gly His Pro Ala Thr Cys Leu
  27                      32                      37                      42

gct gtc ttc agg gag ctc cca tcc ttg gct aag aac tgg gtg atg cgg      436
Ala Val Phe Arg Glu Leu Pro Ser Leu Ala Lys Asn Trp Val Met Arg
  43                      48                      53                      58

atg ctc ttt ctg gag cag cct ttg cca cag gct gct gta gct ctg tgg      484
Met Leu Phe Leu Glu Gln Pro Leu Pro Gln Ala Ala Val Ala Leu Trp
  59                      64                      69                      74

gta aag aag gaa ttc agc aag gct cag gag gaa agt aca ggg ctg ctg      532
Val Lys Lys Glu Phe Ser Lys Ala Gln Glu Glu Ser Thr Gly Leu Leu
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agc ggc ctc cgg atc tgg cac acc cag ctg ctc cca ggc ggg ctc cag      580
Ser Gly Leu Arg Ile Trp His Thr Gln Leu Leu Pro Gly Gly Leu Gln
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ggc ctc atc ctc aac ccc att ttc cgc cag aac ctc cgc att gcc ctt      628
Gly Leu Ile Leu Asn Pro Ile Phe Arg Gln Asn Leu Arg Ile Ala Leu
  107                      112                      117                      122

ctg ggt ggg ggg aag gcc tgg tct gat gac aca agt cag ctg gga cca      676
Leu Gly Gly Gly Lys Ala Trp Ser Asp Asp Thr Ser Gln Leu Gly Pro
  123                      128                      133                      138

gac aag cat gcc cgg gac gtt ccc tcc ctt gac aag tac gcc gag gag      724
Asp Lys His Ala Arg Asp Val Pro Ser Leu Asp Lys Tyr Ala Glu Glu
  139                      144                      149                      154

cga tgg gag gtg gtc ttg cac ttc atg gtg ggc tcc ccc agt gca gct      772
Arg Trp Glu Val Val Leu His Phe Met Val Gly Ser Pro Ser Ala Ala
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171	176	181	186	
agt act gaa cct gga gag ccg ccc tgc att act tcc gct ggc ttc cag				868
Ser Thr Glu Pro Gly Glu Pro Pro Cys Ile Thr Ser Ala Gly Phe Gln				
187	192	197	202	
ttc ctg ttg ctg gac acc ccg gct cag ctc tgg tac ttt atg ttg cag				916
Phe Leu Leu Leu Asp Thr Pro Ala Gln Leu Trp Tyr Phe Met Leu Gln				
203	208	213	218	
tat ttg cag aca gcc cag agc cgg ggc atg gac ctg gta gag att ctc				964
Tyr Leu Gln Thr Ala Gln Ser Arg Gly Met Asp Leu Val Glu Ile Leu				
219	224	229	234	
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Ser Phe Leu Phe Gln Leu Ser Phe Ser Thr Leu Gly Lys Asp Tyr Ser				
235	240	245	250	
gtg gaa ggt atg agt gat tct ctg ttg aac ttc ctg caa cat ctg cgt				1060
Val Glu Gly Met Ser Asp Ser Leu Leu Asn Phe Leu Gln His Leu Arg				
251	256	261	266	
gag ttt ggg ctt gtt ttc cag agg aag agg aaa tct cgg cgt tac tac				1108
Glu Phe Gly Leu Val Phe Gln Arg Lys Arg Lys Ser Arg Arg Tyr Tyr				
267	272	277	282	
ccc aca cgc ctg gcc atc aat ctc tca tca ggt gtc tct gga gct ggg				1156
Pro Thr Arg Leu Ala Ile Asn Leu Ser Ser Gly Val Ser Gly Ala Gly				
283	288	293	298	
ggc act gtg cat cag cca ggt ttc att gtc gtg gaa acc aat tac cga				1204
Gly Thr Val His Gln Pro Gly Phe Ile Val Val Glu Thr Asn Tyr Arg				
299	304	309	314	
ctg tat gcc tac acg gag tcg gag ctg cag att gcc ctc att gcc ctc				1252
Leu Tyr Ala Tyr Thr Glu Ser Glu Leu Gln Ile Ala Leu Ile Ala Leu				
315	320	325	330	
ttc tct gag atg ctc tat cgg ttc ccc aac atg gtg gtg gcg cag gtg				1300
Phe Ser Glu Met Leu Tyr Arg Phe Pro Asn Met Val Val Ala Gln Val				
331	336	341	346	
acc cgg gag agt gtg cag cag gca atc gcc agt ggc atc aca gcc cag				1348
Thr Arg Glu Ser Val Gln Gln Ala Ile Ala Ser Gly Ile Thr Ala Gln				
347	352	357	362	
cag ata atc cat ttc cta agg aca aga gcc cac cca gtg atg ctc aaa				1396
Gln Ile Ile His Phe Leu Arg Thr Arg Ala His Pro Val Met Leu Lys				
363	368	373	378	
cag aca cct gtg ctg ccc ccc acc atc acc gac cag atc cgg ctc tgg				1444
Gln Thr Pro Val Leu Pro Pro Thr Ile Thr Asp Gln Ile Arg Leu Trp				
379	384	389	394	

gag ctg gaa agg gac aga ctc cgg ttc act gag ggt gtc ctg tat aac 1492  
 Glu Leu Glu Arg Asp Arg Leu Arg Phe Thr Glu Gly Val Leu Tyr Asn  
 395 400 405 410

cag ttc ctg tcg caa gtg gac ttt gag ctg ctg ctg gcc cac gcg cgg 1540  
 Gln Phe Leu Ser Gln Val Asp Phe Glu Leu Leu Ala His Ala Arg  
 411 416 421 426

gag ctg ggc gtg ctc gtg ttc gag aac tcg gcc aag cgg ctc atg gtg 1588  
 Glu Leu Gly Val Leu Val Phe Glu Asn Ser Ala Lys Arg Leu Met Val  
 427 432 437 442

gtg acc ccg gcc ggg cac agc gac gtc aag cgc ttt tgg aag cgg cag 1636  
 Val Thr Pro Ala Gly His Ser Asp Val Lys Arg Phe Trp Lys Arg Gln  
 443 448 453 458

aaa cat agc tcc tga gagcgcggga cttggacacg gacctcggcg ggcgggagct 1691  
 Lys His Ser Ser \*  
 459

gggcggggcg gggcatcaga actcaggtgt tttttattta cgcgtcaggg cttttcttgt 1751

ttaataaagt tatgatagct agcaaaaaaa aaaaa 1786

<210> 406  
 <211> 1113  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (11)..(913)

<400> 406  
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 Met Ala Ala Gln Ala Ala Gly Val Ser Arg Gln Arg Ala  
 1 5 10

gcc act caa ggt ctt ggc tcc aac caa aac gct ttg aag tac ttg ggc 97  
 Ala Thr Gln Gly Leu Gly Ser Asn Gln Asn Ala Leu Lys Tyr Leu Gly  
 14 19 24 29

cag gat ttc aag acc ctg agg caa cag tgc ttg gac tca ggg gtc cta 145  
 Gln Asp Phe Lys Thr Leu Arg Gln Gln Cys Leu Asp Ser Gly Val Leu  
 30 35 40 45

ttt aag gac cct gag ttc cca gca tgt cca tca gct ttg ggc tac aag 193  
 Phe Lys Asp Pro Glu Phe Pro Ala Cys Pro Ser Ala Leu Gly Tyr Lys  
 46 51 56 61

gat ctt gga cca ggc tct ccg caa act caa ggc atc atc tgg aag cgg 241  
 Asp Leu Gly Pro Gly Ser Pro Gln Thr Gln Gly Ile Ile Trp Lys Arg  
 62 67 72 77

ccc acg gag ttg tgt ccc agc cct cag ttt atc gtt ggt gga gcc acg	289
Pro Thr Glu Leu Cys Pro Ser Pro Gln Phe Ile Val Gly Gly Ala Thr	
78 83 88 93	
cgc aca gac att tgt cag ggt ggt cta ggt gac tgc tgg ctt ctg gct	337
Arg Thr Asp Ile Cys Gln Gly Gly Leu Gly Asp Cys Trp Leu Leu Ala	
94 99 104 109	
gcc att gcc tcc ctg acc ctg aat gaa gag ctg ctt tac cgg gtg gtc	385
Ala Ile Ala Ser Leu Thr Leu Asn Glu Glu Leu Leu Tyr Arg Val Val	
110 115 120 125	
ccc agg gac cag gac ttc cag gag aac tat gcg gga atc ttt cac ttt	433
Pro Arg Asp Gln Asp Phe Gln Glu Asn Tyr Ala Gly Ile Phe His Phe	
126 131 136 141	
cag ttc tgg cag tac gga gag tgg gtg gag gtg gtc att gac gac agg	481
Gln Phe Trp Gln Tyr Gly Glu Trp Val Glu Val Val Ile Asp Asp Arg	
142 147 152 157	
ctg ccc acc aag aat gga cag ctg ctc ttc cta cac tcg gaa caa ggc	529
Leu Pro Thr Lys Asn Gly Gln Leu Leu Phe Leu His Ser Glu Gln Gly	
158 163 168 173	
aat gaa ttc tgg agt gcc ctg ctg gag aaa gcc tat gcc aag ctt aat	577
Asn Glu Phe Trp Ser Ala Leu Leu Glu Lys Ala Tyr Ala Lys Leu Asn	
174 179 184 189	
ggt tgt tat gag gct ctc gct gga ggt tcc aca gtg gag ggg ttt gag	625
Gly Cys Tyr Glu Ala Leu Ala Gly Gly Ser Thr Val Glu Gly Phe Glu	
190 195 200 205	
gat ttc aca ggt ggc atc tct gag ttt tat gac ctg aag aaa cca cca	673
Asp Phe Thr Gly Gly Ile Ser Glu Phe Tyr Asp Leu Lys Lys Pro Pro	
206 211 216 221	
gcc aat cta tat cag atc atc cgg aag gcc ctc tgt gcg ggg tct ctg	721
Ala Asn Leu Tyr Gln Ile Ile Arg Lys Ala Leu Cys Ala Gly Ser Leu	
222 227 232 237	
ctg ggc tgc tcc att gat gtc tac agt gca gcc gaa gcc gaa gcc atc	769
Leu Gly Cys Ser Ile Asp Val Tyr Ser Ala Ala Glu Ala Glu Ala Ile	
238 243 248 253	
acc agc cag aag ctg gtt aag agt cat gcg tac tct gtc act gga gtc	817
Thr Ser Gln Lys Leu Val Lys Ser His Ala Tyr Ser Val Thr Gly Val	
254 259 264 269	
gaa gag gtg aat ttc cag ggc cat cca gag aag ctg atc aga ctc agg	865
Glu Glu Val Asn Phe Gln Gly His Pro Glu Lys Leu Ile Arg Leu Arg	
270 275 280 285	
aat cca tgg ggt gaa gtg gag tgg tcg gga gcc tgg agc gat gag tag	913
Asn Pro Trp Gly Glu Val Glu Trp Ser Gly Ala Trp Ser Asp Glu *	
286 291 296 301	

gtttttttcc cccgcttctc cagtcattctc tccctctgcg gaagggtgtc gtgtaaaaca 973  
 cacaacaatg agatcgatgt cacagtgagt tcagcagcac gtcctgtctg cagatcacac 1033  
 agtgtgttca gaaaagagta ttaaattgat ccaggctggg aaaagcaaaa taaaaacccc 1093  
 tgggctgtaa aaaaaaaaaa 1113

<210> 407  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (146) .. (931)

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 ctgcctcaga gatgctgccg ctgctgctgc cgctgcccct gctgtgggca gggcctcgc 120  
 tcaggatgca agattccggc tggag atg cca gag tcc gtg acg gtg cag gag 172  
 Met Pro Glu Ser Val Thr Val Gln Glu  
 1 5  
 ggt ctg tgc atc ttt gtg cac tgt tgc gtc ttc tac ctc gag tat ggc 220  
 Gly Leu Cys Ile Phe Val His Cys Ser Val Phe Tyr Leu Glu Tyr Gly  
 10 15 20 25  
 tgg aaa gat tct acc cct gct tat ggc cac tgg ttc cgg gaa ggg gtc 268  
 Trp Lys Asp Ser Thr Pro Ala Tyr Gly His Trp Phe Arg Glu Gly Val  
 26 31 36 41  
 agt gta gac cag gag act cca gtg gcc aca aac aac tca act caa aaa 316  
 Ser Val Asp Gln Glu Thr Pro Val Ala Thr Asn Asn Ser Thr Gln Lys  
 42 47 52 57  
 gtg cag aag gag acc cag ggc cga ttc cac ctc ctc ggt gat ccc tca 364  
 Val Gln Lys Glu Thr Gln Gly Arg Phe His Leu Leu Gly Asp Pro Ser  
 58 63 68 73  
 agg aac aac tgc tcc ctg agc atc aga gac gcc agg agg agg gac aac 412  
 Arg Asn Asn Cys Ser Leu Ser Ile Arg Asp Ala Arg Arg Arg Asp Asn  
 74 79 84 89  
 ggt tca tac ttc ttt tgg gtg gcg aga gga aga aca aaa ttt agt tac 460  
 Gly Ser Tyr Phe Phe Trp Val Ala Arg Gly Arg Thr Lys Phe Ser Tyr  
 90 95 100 105  
 aaa tat tcc ccg ctc tct gtg tat gtg aca gcc ctg acc cac agg ccc 508  
 Lys Tyr Ser Pro Leu Ser Val Tyr Val Thr Ala Leu Thr His Arg Pro  
 106 111 116 121

gac atc ctc atc ccg gag ttc cta aag tct ggc cat ccc agc aac ctg	556
Asp Ile Leu Ile Pro Glu Phe Leu Lys Ser Gly His Pro Ser Asn Leu	
122 127 132 137	
acc tgc tct gtg ccc tgg gtc tgt gag cag gga aca ccc ccc atc ttc	604
Thr Cys Ser Val Pro Trp Val Cys Glu Gln Gly Thr Pro Pro Ile Phe	
138 143 148 153	
tcc tgg atg tca gct gcc ccc acc tcc ctg ggc ccc agg acc ctc cac	652
Ser Trp Met Ser Ala Ala Pro Thr Ser Leu Gly Pro Arg Thr Leu His	
154 159 164 169	
tcc tca gtg ctc acg atc atc cca cgg cct cag gac cac ggc acc aac	700
Ser Ser Val Leu Thr Ile Ile Pro Arg Pro Gln Asp <sup>4</sup> His Gly Thr Asn	
170 175 180 185	
ctc atc tgt cag gtg acg ttc ccc gga gct ggt gtg acc acg gag aga	748
Leu Ile Cys Gln Val Thr Phe Pro Gly Ala Gly Val Thr Thr Glu Arg	
186 191 196 201	
acc atc cag ctc agt gtc tcc tgg aaa tca gga acc gtg gag gag gtg	796
Thr Ile Gln Leu Ser Val Ser Trp Lys Ser Gly Thr Val Glu Glu Val	
202 207 212 217	
gtt gtt ttg gcc gtg ggg gta gtg gct gtg aag atc ctg ctt ctc tgc	844
Val Val Leu Ala Val Gly Val Val Ala Val Lys Ile Leu Leu Leu Cys	
218 223 228 233	
ctt tgc ctc atc atc ctc agt ttc cac aag aag aag gcg gtg agg gca	892
Leu Cys Leu Ile Ile Leu Ser Phe His Lys Lys Lys Ala Val Arg Ala	
234 239 244 249	
gtg gag gtt gag gag aat gta tat gct gtc atg ggt taa tctctcaggc	941
Val Glu Val Glu Glu Asn Val Tyr Ala Val Met Gly *	
250 255 260	
ctccagactg tacttccaga tgtctcctca tccagttcct ccacagtctg aatggccatg	1001
tttcttcttc attgctggag aatgaagtgc aaatgccact gcctggactg aaggcctttc	1061
acgatctgtc ttctgctgga ctctgctcct gatccccctt ctccttgcat caccgaagt	1121
ctccctacac ccaccaggcc aagccctctg tgattctgag actttgcatg tgtagttact	1181
tctcctgaaa tggccttcct cccattcct gccaatccag gtccttatca tccttcaggt	1241
tgtcttaaat gtcattccagg tgtgtgtatt tttatgtaat ccttgatatga tattaagcgg	1301
agatgtggca tttgttcatt aatttgtaga catattcagt aaccatactg aatacatata	1361
atgactatgt gccagcattt ccgtatgtgc aagaagttca tcaatagata tagactcaaa	1421
gagctctgtc atcaagctgt tgttctgaag agcagaagga taaaaataaa aagaaataag	1481
taaaata /	1488



<210> 408  
 <211> 1457  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (253)..(1140)

<400> 408  
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 agcagactgc tgggactgcg gggcgcccg ggcggggcc agaggcggg cggggcgggt 120  
 cgggtcgggg gcctttaaga ggcgcggtcg ccgggaccga cacagacgcg gacagcgccg 180  
 ggactcgccg ccccgggact cgcgcagccc gcagcgctcc ggctcctcct ctcgcgaccg 240  
 ccctccgcag cg atg gac gga gac ggt gac cca gag agc gtg ggc cag 288  
                   Met Asp Gly Asp Gly Asp Pro Glu Ser Val Gly Gln  
                   1                  5                  10  
 ccc gag gag gca agc ccg gag gag cag cca gag gag gcg agt gct gag 336  
 Pro Glu Glu Ala Ser Pro Glu Glu Gln Pro Glu Glu Ala Ser Ala Glu  
   13                  18                  23                  28  
 gag gag cgg ccg gag gac cag cag gag gag gag gcg gcc gcc gcc gcg 384  
 Glu Glu Arg Pro Glu Asp Gln Gln Glu Glu Glu Ala Ala Ala Ala Ala  
   29                  34                  39                  44  
 tac ctg gac gag ctg ccc gag ccg ctg ctg ctg cgc gtg ctg gcc gca 432  
 Tyr Leu Asp Glu Leu Pro Glu Pro Leu Leu Leu Arg Val Leu Ala Ala  
   45                  50                  55                  60  
 ctg ccg gcc gcc gag ctg gtg cag gcc tgc cgc ctg gtg tgc ctg cgc 480  
 Leu Pro Ala Ala Glu Leu Val Gln Ala Cys Arg Leu Val Cys Leu Arg  
   61                  66                  71                  76  
 tgg aag gag ctg gtg gac ggc gcc ccg ctg tgg ctg ctc aag tgc cag 528  
 Trp Lys Glu Leu Val Asp Gly Ala Pro Leu Trp Leu Leu Lys Cys Gln  
   77                  82                  87                  92  
 cag gag ggg ctg gtg ccc gag ggc ggc gtg gag gag gag cgc gac cac 576  
 Gln Glu Gly Leu Val Pro Glu Gly Gly Val Glu Glu Glu Arg Asp His  
   93                  98                  103                  108  
 tgg cag cag ttc tac ttc ctg agc aag cgg cgc cgc aac ctt ctg cgt 624  
 Trp Gln Gln Phe Tyr Phe Leu Ser Lys Arg Arg Arg Asn Leu Leu Arg  
  109                  114                  119                  124  
 aac ccg tgt ggg gaa gag gac ttg gaa ggc tgg tgt gac gtg gag cat 672  
 Asn Pro Cys Gly Glu Glu Asp Leu Glu Gly Trp Cys Asp Val Glu His  
  125                  130                  135                  140  
 ggt ggg gac ggc tgg agg gtg gag gag ctg cct gga gac agt ggg gtg 720

Gly Gly Asp Gly Trp Arg Val Glu Glu Leu Pro Gly Asp Ser Gly Val	
141 146 151 156	
gag ttc acc cac gat gag agc gtc aag aag tac ttc gcc tcc tcc ttt	768
Glu Phe Thr His Asp Glu Ser Val Lys Lys Tyr Phe Ala Ser Ser Phe	
157 162 167 172	
gag tgg tgt cgc aaa gca cag gtc att gac ctg cag gct gag ggc tac	816
Glu Trp Cys Arg Lys Ala Gln Val Ile Asp Leu Gln Ala Glu Gly Tyr	
173 178 183 188	
tgg gag gag ctg ctg gac acg act cag ccg gcc atc gtg gtg aag gac	864
Trp Glu Glu Leu Leu Asp Thr Thr Gln Pro Ala Ile Val Val Lys Asp	
189 194 199 204	
tgg tac tcg ggc cgc agc gac gct ggt tgc ctc tac gag ctc acc gtt	912
Trp Tyr Ser Gly Arg Ser Asp Ala Gly Cys Leu Tyr Glu Leu Thr Val	
205 210 215 220	
aag cta ctg tcc gag cac gag aac gtg ctg gct gag ttc agc agc ggg	960
Lys Leu Leu Ser Glu His Glu Asn Val Leu Ala Glu Phe Ser Ser Gly	
221 226 231 236	
cag gtg gca gtg ccc caa gac agt gac ggc ggg ggc tgg atg gag atc	1008
Gln Val Ala Val Pro Gln Asp Ser Asp Gly Gly Gly Trp Met Glu Ile	
237 242 247 252	
tcc cac acc ttc acc gac tac ggg ccg ggc gtc cgc ttc gtc cgc ttc	1056
Ser His Thr Phe Thr Asp Tyr Gly Pro Gly Val Arg Phe Val Arg Phe	
253 258 263 268	
gag cac ggg ggg cag gac tcc gtc tac tgg aag ggc tgg ttc ggg gcc	1104
Glu His Gly Gly Gln Asp Ser Val Tyr Trp Lys Gly Trp Phe Gly Ala	
269 274 279 284	
cgg gtg acc aac agc agc gtg tgg gta gaa ccc tga gcga ccctgcctcc	1154
Arg Val Thr Asn Ser Ser Val Trp Val Glu Pro *	
285 290 295	
gctctcccc agctgcctgg aggggcaaag gtcgagggtg gataggcctt aacttagtcc	1214
atagcgctct cacttcccc aagccacaca tctctctccc atcccttgct ccgatcccag	1274
ccctgagca gggagagaga agttttgttg gcataggttt gcttaggtag ccggcttcta	1334
gaatgtagat ccgtgagggc gtgagcttgg actggaccca ctgctgattc cctgcaccta	1394
gcacagtgct tgccacaaag tgggctctca ataaatatta tttgtccaag gaaaaaaaaa	1454
aaa	1457

<210> 409  
 <211> 2188  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (400)..(1899)

<220>

<221> misc\_feature

<222> (1)...(2188)

<223> n = a,t,c or g

<400> 409

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tgcttaaagg ccttgctttc ttgtctaacg ccgcaaccag tcctctgagt tgccaacgtc      120
tttcttcttg tctcgacgcc ccgtgtcacg gccacagcga ttctctgctt agcaggatcg      180
gtccacagcg ggacgtgagt ctcttcctcc tcgcggctta ccgctctctc cgcttagtgc      240
caggtgctaa taaagttgtt gtttcaaatg cggccaggaa catcgcgagc ggggaccaat      300
cagagagtag ctttgcctct ataacggcgc gagagtgaga cgcatcggt gagcgactaa      360
cgctagaaac agtggtgcgc ggagaggaga ggcctcggg  atg tct ctg gca gat      414
                                         Met Ser Leu Ala Asp
                                         1

gag ctc tta gct gat ctc gaa gag gca gca gaa gag gag gaa gga gga      462
Glu Leu Leu Ala Asp Leu Glu Glu Ala Ala Glu Glu Glu Glu Gly Gly
   6              11              16              21

agc tat ggg gag gaa gaa gag gag cca gcg atc gag gat gtg cag gag      510
Ser Tyr Gly Glu Glu Glu Glu Glu Pro Ala Ile Glu Asp Val Gln Glu
  22              27              32              37

gag aca cag ctg gat ctt tcc ggg gat tca gtc aag acc atc gcc aag      558
Glu Thr Gln Leu Asp Leu Ser Gly Asp Ser Val Lys Thr Ile Ala Lys
  38              43              48              53

cta tgg gat agt aag atg ttt gct gag att atg atg aag att gag gag      606
Leu Trp Asp Ser Lys Met Phe Ala Glu Ile Met Met Lys Ile Glu Glu
  54              59              64              69

tat atc agc aag caa gcc aaa gct tca gaa gtg atg gga cca gtg gag      654
Tyr Ile Ser Lys Gln Ala Lys Ala Ser Glu Val Met Gly Pro Val Glu
  70              75              80              85

gcc gcg cct gaa tac cgc gtc atc gtg gat gcc aac aac ctg acc gtg      702
Ala Ala Pro Glu Tyr Arg Val Ile Val Asp Ala Asn Asn Leu Thr Val
  86              91              96              101

gag atc gaa aac gag ctg aac atc atc cat aag ttc atc cgg gat aag      750
Glu Ile Glu Asn Glu Leu Asn Ile Ile His Lys Phe Ile Arg Asp Lys
102              107              112              117

tac tca aag aga ttc cct gaa ctg gag tcc ttg gtc ccc aat gca ctg      798
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Tyr	Ser	Lys	Arg	Phe	Pro	Glu	Leu	Glu	Ser	Leu	Val	Pro	Asn	Ala	Leu		
118					123					128					133		
gat	tac	atc	cgc	acg	gtc	aag	gag	ctg	ggc	aac	agc	ctg	gac	aag	tgc		846
Asp	Tyr	Ile	Arg	Thr	Val	Lys	Glu	Leu	Gly	Asn	Ser	Leu	Asp	Lys	Cys		
134					139					144					149		
aag	aac	aat	gag	aac	ctg	cag	cag	atc	ctc	acc	aat	gcc	acc	atc	atg		894
Lys	Asn	Asn	Glu	Asn	Leu	Gln	Gln	Ile	Leu	Thr	Asn	Ala	Thr	Ile	Met		
150					155					160					165		
gtc	gtc	agc	gtc	acc	gcc	tcc	acc	acc	cag	ggg	cag	cag	ctg	tcg	gag		942
Val	Val	Ser	Val	Thr	Ala	Ser	Thr	Thr	Gln	Gly	Gln	Gln	Leu	Ser	Glu		
166					171					176					181		
gag	gag	ctg	gag	cgg	ctg	gag	gag	gcc	tgc	gac	atg	gcg	ctg	gag	ctg		990
Glu	Glu	Leu	Glu	Arg	Leu	Glu	Glu	Ala	Cys	Asp	Met	Ala	Leu	Glu	Leu		
182					187					192					197		
aac	gcc	tcc	aag	cac	cgc	atc	tac	gag	tat	gtg	gag	tcc	cgg	atg	tcc		1038
Asn	Ala	Ser	Lys	His	Arg	Ile	Tyr	Glu	Tyr	Val	Glu	Ser	Arg	Met	Ser		
198					203					208					213		
ttc	atc	gca	ccc	aac	ctg	tcc	atc	att	atc	ggg	gca	tcc	acg	gcc	gcc		1086
Phe	Ile	Ala	Pro	Asn	Leu	Ser	Ile	Ile	Ile	Gly	Ala	Ser	Thr	Ala	Ala		
214					219					224					229		
aag	atc	atg	ggt	gtg	gcc	ggc	ggc	ctg	acc	aac	ctc	tcc	aag	atg	ccc		1134
Lys	Ile	Met	Gly	Val	Ala	Gly	Gly	Leu	Thr	Asn	Leu	Ser	Lys	Met	Pro		
230					235					240					245		
gcc	tgc	aac	atc	atg	ctg	ctc	ggg	gcc	cag	cgc	aag	acg	ctg	tcg	ggc		1182
Ala	Cys	Asn	Ile	Met	Leu	Leu	Gly	Ala	Gln	Arg	Lys	Thr	Leu	Ser	Gly		
246					251					256					261		
ttc	tcg	tct	acc	tca	gtg	ctg	ccc	cac	acc	ggc	tac	atc	tac	cac	agt		1230
Phe	Ser	Ser	Thr	Ser	Val	Leu	Pro	His	Thr	Gly	Tyr	Ile	Tyr	His	Ser		
262					267					272					277		
gac	atc	gtg	cag	tcc	ctg	cca	ccg	gat	ctg	cgg	cgg	aaa	gcg	gcc	cgg		1278
Asp	Ile	Val	Gln	Ser	Leu	Pro	Pro	Asp	Leu	Arg	Arg	Lys	Ala	Ala	Arg		
278					283					288					293		
ctg	gtg	gcc	gcc	aag	tgc	aca	ctg	gca	gcc	cgt	gtg	gac	agt	ttc	cac		1326
Leu	Val	Ala	Ala	Lys	Cys	Thr	Leu	Ala	Ala	Arg	Val	Asp	Ser	Phe	His		
294					299					304					309		
gag	agc	aca	gaa	ggg	aag	gtg	ggc	tac	gaa	ctg	aag	gat	gag	atc	gag		1374
Glu	Ser	Thr	Glu	Gly	Lys	Val	Gly	Tyr	Glu	Leu	Lys	Asp	Glu	Ile	Glu		
310					315					320					325		
cgc	aaa	ttc	gac	aag	tgg	cag	gag	ccg	ccg	cct	gtg	aag	cag	gtg	aag		1422
Arg	Lys	Phe	Asp	Lys	Trp	Gln	Glu	Pro	Pro	Pro	Val	Lys	Gln	Val	Lys		
326					331					336					341		
ccg	ctg	cct	gcg	ccc	ctg	gat	gga	cag	cgg	aag	aag	cga	ggc	ggc	cgc		1470
Pro	Leu	Pro	Ala	Pro	Leu	Asp	Gly	Gln	Arg	Lys	Lys	Arg	Gly	Gly	Arg		

342	347	352	357	
agg tac cgc aag atg aag gag cgg ctg ggg ctg acg gag atc cgg aag				1518
Arg Tyr Arg Lys Met Lys Glu Arg Leu Gly Leu Thr Glu Ile Arg Lys				
358	363	368	373	
cag gcc aac cgt atg agc ttc gga gag atc gag gag gac gcc tac cag				1566
Gln Ala Asn Arg Met Ser Phe Gly Glu Ile Glu Glu Asp Ala Tyr Gln				
374	379	384	389	
gag gac ctg gga ttc agc ctg ggc cac ctg ggc aag tcg ggc agt ggg				1614
Glu Asp Leu Gly Phe Ser Leu Gly His Leu Gly Lys Ser Gly Ser Gly				
390	395	400	405	
cgt gtg cgg cag aca cag gta aac gag gcc acc aag gcc agg atc tcc				1662
Arg Val Arg Gln Thr Gln Val Asn Glu Ala Thr Lys Ala Arg Ile Ser				
406	411	416	421	
aag acg ctg cag cgg acc ctg cag aag cag agc gtc gta tat ggc ggg				1710
Lys Thr Leu Gln Arg Thr Leu Gln Lys Gln Ser Val Val Tyr Gly Gly				
422	427	432	437	
aag tcc acc atc cgc gac cgc tcc tcg ggc acg gcc tcc agc gtg gcc				1758
Lys Ser Thr Ile Arg Asp Arg Ser Ser Gly Thr Ala Ser Ser Val Ala				
438	443	448	453	
ttc acc cca ctc cag ggc ctg gag att gtg aac cca cag gcg gca gag				1806
Phe Thr Pro Leu Gln Gly Leu Glu Ile Val Asn Pro Gln Ala Ala Glu				
454	459	464	469	
aag aag gtg gct gag gcc aac cag aag tat ttc tcc agc atg gct gag				1854
Lys Lys Val Ala Glu Ala Asn Gln Lys Tyr Phe Ser Ser Met Ala Glu				
470	475	480	485	
ttc ctc aag gtc aag ggc gag aag agt ggc ctt atg tcc acc tga atg				1902
Phe Leu Lys Val Lys Gly Glu Lys Ser Gly Leu Met Ser Thr *				
486	491	496		
actgcgtgtg tccaagggtgg cttcccactg aagggacaca gaggtccagt ctttctgaag				1962
ggctaggatc gggttctggc agggagaacc tgccctgcc a ctggcccat tgctgggact				2022
gcccagggag gaggccttgg aagagtccgg cctggcctcc cccaggaccg agatcacgcg				2082
ccagtatggg ctagagcagg tcttcatcat gccttgtctt ttttaactga gaaaggagat				2142
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 Glu Leu Leu Ala Asp Leu Glu Glu Ala Ala Glu Glu Glu Glu Gly Gly  
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 Ser Tyr Gly Glu Glu Glu Glu Glu Pro Ala Ile Glu Asp Val Gln Glu  
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 Glu Thr Gln Leu Asp Leu Ser Gly Asp Ser Val Lys Thr Ile Ala Lys  
 38 43 48 53  
 cta tgg gat agt aag atg ttt gct gag att atg atg aag att gag gag 606  
 Leu Trp Asp Ser Lys Met Phe Ala Glu Ile Met Met Lys Ile Glu Glu  
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 tat atc agc aag caa gcc aaa gct tca gaa gtg atg gga cca gtg gag 654  
 Tyr Ile Ser Lys Gln Ala Lys Ala Ser Glu Val Met Gly Pro Val Glu  
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 gcc gcg cct gaa tac cgc gtc atc gtg gat gcc aac aac ctg acc gtg 702  
 Ala Ala Pro Glu Tyr Arg Val Ile Val Asp Ala Asn Asn Leu Thr Val  
 86 91 96 101  
 gag atc gaa aac gag ctg aac atc atc cat aag ttc atc cgg gat aag 750  
 Glu Ile Glu Asn Glu Leu Asn Ile Ile His Lys Phe Ile Arg Asp Lys  
 102 107 112 117  
 tac tca aag aga ttc cct gaa ctg gag tcc ttg gtc ccc aat gca ctg 798  
 Tyr Ser Lys Arg Phe Pro Glu Leu Glu Ser Leu Val Pro Asn Ala Leu  
 118 123 128 133

gat tac atc cgc acg gtc aag gag ctg ggc aac agc ctg gac aag tgc	846
Asp Tyr Ile Arg Thr Val Lys Glu Leu Gly Asn Ser Leu Asp Lys Cys	
134 139 144 149	
aag aac aat gag aac ctg cag cag atc ctc acc aat gcc acc atc atg	894
Lys Asn Asn Glu Asn Leu Gln Gln Ile Leu Thr Asn Ala Thr Ile Met	
150 155 160 165	
gtc gtc agc gtc acc gcc tcc acc acc cag ggg cag cag ctg tcg gag	942
Val Val Ser Val Thr Ala Ser Thr Thr Gln Gly Gln Gln Leu Ser Glu	
166 171 176 181	
gag gag ctg gag cgg ctg gag gag gcc tgc gac atg gcg ctg gag ctg	990
Glu Glu Leu Glu Arg Leu Glu Glu Ala Cys Asp Met <sup>3</sup> Ala Leu Glu Leu	
182 187 192 197	
aac gcc tcc aag cac cgc atc tac gag tat gtg gag tcc cgg atg tcc	1038
Asn Ala Ser Lys His Arg Ile Tyr Glu Tyr Val Glu Ser Arg Met Ser	
198 203 208 213	
ttc atc gca ccc aac ctg tcc atc att atc ggg gca tcc acg gcc gcc	1086
Phe Ile Ala Pro Asn Leu Ser Ile Ile Ile Gly Ala Ser Thr Ala Ala	
214 219 224 229	
aag atc atg ggt gtg gcc ggc ggc ctg acc aac ctc tcc aag atg ccc	1134
Lys Ile Met Gly Val Ala Gly Gly Leu Thr Asn Leu Ser Lys Met Pro	
230 235 240 245	
gcc tgc aac atc atg ctg ctc ggg gcc cag cgc aag acg ctg tcg ggc	1182
Ala Cys Asn Ile Met Leu Leu Gly Ala Gln Arg Lys Thr Leu Ser Gly	
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Phe Ser Ser Thr Ser Val Leu Pro His Thr Gly Tyr Ile Tyr His Ser	
262 267 272 277	
gac atc gtg cag tcc ctg cca ccg gat ctg cgg cgg aaa gcg gcc cgg	1278
Asp Ile Val Gln Ser Leu Pro Pro Asp Leu Arg Arg Lys Ala Ala Arg	
278 283 288 293	
ctg gtg gcc gcc aag tgc aca ctg gca gcc cgt gtg gac agt ttc cac	1326
Leu Val Ala Ala Lys Cys Thr Leu Ala Ala Arg Val Asp Ser Phe His	
294 299 304 309	
gag agc aca gaa ggg aag gtg ggc tac gaa ctg aag gat gag atc gag	1374
Glu Ser Thr Glu Gly Lys Val Gly Tyr Glu Leu Lys Asp Glu Ile Glu	
310 315 320 325	
cgc aaa ttc gac aag tgg cag gag ccg ccg cct gtg aag cag gtg aag	1422
Arg Lys Phe Asp Lys Trp Gln Glu Pro Pro Pro Val Lys Gln Val Lys	
326 331 336 341	
ccg ctg cct gcg ccc ctg gat gga cag cgg aag aag cga ggc ggc cgc	1470
Pro Leu Pro Ala Pro Leu Asp Gly Gln Arg Lys Lys Arg Gly Gly Arg	
342 347 352 357	
agg tac cgc aag atg aag gag cgg ctg ggg ctg acg gag atc cgg aag	1518

Arg Tyr Arg Lys Met Lys Glu Arg Leu Gly Leu Thr Glu Ile Arg Lys	
358 363 368 373	
cag gcc aac cgt atg agc ttc gga gag atc gag gag gac gcc tac cag	1566
Gln Ala Asn Arg Met Ser Phe Gly Glu Ile Glu Glu Asp Ala Tyr Gln	
374 379 384 389	
gag gac ctg gga ttc agc ctg ggc cac ctg ggc aag tcg ggc agt ggg	1614
Glu Asp Leu Gly Phe Ser Leu Gly His Leu Gly Lys Ser Gly Ser Gly	
390 395 400 405	
cgt gtg cgg cag aca cag gta aac gag gcc acc aag gcc agg atc tcc	1662
Arg Val Arg Gln Thr Gln Val Asn Glu Ala Thr Lys Ala Arg Ile Ser	
406 411 416 421	
aag acg ctg cag gta tgg gcc aga ccc agg tgg ggc tgg gag acc gag	1710
Lys Thr Leu Gln Val Trp Ala Arg Pro Arg Trp Gly Trp Glu Thr Glu	
422 427 432 437	
gga cac aag gtg ggg gga gcc cag atc gca gcc tcc ctg tcc tcc cca	1758
Gly His Lys Val Gly Gly Ala Gln Ile Ala Ala Ser Leu Ser Ser Pro	
438 443 448 453	
cag cgg acc ctg cag aag cag agc gtc gta tat ggc ggg aag tcc acc	1806
Gln Arg Thr Leu Gln Lys Gln Ser Val Val Tyr Gly Gly Lys Ser Thr	
454 459 464 469	
atc cgc gac cgc tcc tcg ggc acg gcc tcc agc gtg gcc ttc acc cca	1854
Ile Arg Asp Arg Ser Ser Gly Thr Ala Ser Ser Val Ala Phe Thr Pro	
470 475 480 485	
ctc cag ggc ctg gag att gtg aac cca cag gcg gca gag aag aag gtg	1902
Leu Gln Gly Leu Glu Ile Val Asn Pro Gln Ala Ala Glu Lys Lys Val	
486 491 496 501	
gct gag gcc aac cag aag tat ttc tcc agc atg gct gag ttc ctc aag	1950
Ala Glu Ala Asn Gln Lys Tyr Phe Ser Ser Met Ala Glu Phe Leu Lys	
502 507 512 517	
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Val Lys Gly Glu Lys Ser Gly Leu Met Ser Thr *	
518 523 528	
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	Met
	1
gcg gcg cgc aag ggt cgg cgt cgc acg tgt gaa acc ggg gaa ccc atg	165
Ala Ala Arg Lys Gly Arg Arg Arg Thr Cys Glu Thr Gly Glu Pro Met	
2 7 12 17	
gaa gcc gag tcc ggc gac aca agt tcc gag ggc ccg gcc cag gtc tac	213
Glu Ala Glu Ser Gly Asp Thr Ser Ser Glu Gly Pro Ala Gln Val Tyr	
18 23 28 33	
ctg ccc ggc cgg ggg ccg ccg cta cgc gaa ggg gag gag ctg gtc atg	261
Leu Pro Gly Arg Gly Pro Pro Leu Arg Glu Gly Glu Glu Leu Val Met	
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gac gag gag gcc tat gtg ctc tac cac cga gcg cag act ggc gcc ccc	309
Asp Glu Glu Ala Tyr Val Leu Tyr His Arg Ala Gln Thr Gly Ala Pro	
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Cys Leu Ser Phe Asp Ile Val Arg Asp His Leu Gly Asp Asn Arg Thr	
66 71 76 81	
gag ctt cct ctt aca ctt tac ttg tgt gct ggg acc cag gct gag agc	405
Glu Leu Pro Leu Thr Leu Tyr Leu Cys Ala Gly Thr Gln Ala Glu Ser	
82 87 92 97	
gcc cag agc aac aga ctg atg atg ctt cgg atg cac aat ctg cat ggg	453
Ala Gln Ser Asn Arg Leu Met Met Leu Arg Met His Asn Leu His Gly	
98 103 108 113	
aca aag ccc cca ccc tca gag ggc agt gat gaa gaa gaa gag gag gaa	501
Thr Lys Pro Pro Pro Ser Glu Gly Ser Asp Glu Glu Glu Glu Glu Glu	
114 119 124 129	
gat gaa gag gat gaa gaa gag cgg aaa cct cag ctg gag ctg gcc atg	549
Asp Glu Glu Asp Glu Glu Glu Arg Lys Pro Gln Leu Glu Leu Ala Met	
130 135 140 145	
gtg ccc cac tat ggt ggc atc aac cga gtt cgg gtg tca tgg ctg ggt	597
Val Pro His Tyr Gly Gly Ile Asn Arg Val Arg Val Ser Trp Leu Gly	
146 151 156 161	
gaa gag cct gtg gct ggg gtg tgg tca gag aag ggc cag gtg gag gtg	645
Glu Glu Pro Val Ala Gly Val Trp Ser Glu Lys Gly Gln Val Glu Val	

162	167	172	177	
ttt gcg ctg cgg cgg ctt ctg cag gtg gtg gag gag ccc cag gcc ctg				693
Phe Ala Leu Arg Arg Leu Leu Gln Val Val Glu Glu Pro Gln Ala Leu				
178	183	188	193	
gca gcc ttc ctc cgg gat gag cag gcc caa atg aag ccc atc ttc tcc				741
Ala Ala Phe Leu Arg Asp Glu Gln Ala Gln Met Lys Pro Ile Phe Ser				
194	199	204	209	
ttc gct gga cac atg ggc gag ggc ttt gcc ctt gac tgg tcc ccc cgg				789
Phe Ala Gly His Met Gly Glu Gly Phe Ala Leu Asp Trp Ser Pro Arg				
210	215	220	225	
gtg acc ggt cgc ctg ctg acc ggt gac tgt caa aag aac atc cac ctc				837
Val Thr Gly Arg Leu Leu Thr Gly Asp Cys Gln Lys Asn Ile His Leu				
226	231	236	241	
tgg aca cct acg gac ggc ggc tcc tgg cac gtg gac cag cgg cca ttc				885
Trp Thr Pro Thr Asp Gly Gly Ser Trp His Val Asp Gln Arg Pro Phe				
242	247	252	257	
gtg ggc cac aca cgc tct gtg gag gac ctg cag tgg tca ccg act gag				933
Val Gly His Thr Arg Ser Val Glu Asp Leu Gln Trp Ser Pro Thr Glu				
258	263	268	273	
aac acg gtg ttt gcc tcc tgc tca gct gac gcc tcc atc cgc atc tgg				981
Asn Thr Val Phe Ala Ser Cys Ser Ala Asp Ala Ser Ile Arg Ile Trp				
274	279	284	289	
gac atc cgg gca gcc ccc agc aag gcc tgc atg ctc acc aca gcc acc				1029
Asp Ile Arg Ala Ala Pro Ser Lys Ala Cys Met Leu Thr Thr Ala Thr				
290	295	300	305	
gcc cat gat ggg gac gtc aat gtc atc agc tgg agc cgc cgg gag ccc				1077
Ala His Asp Gly Asp Val Asn Val Ile Ser Trp Ser Arg Arg Glu Pro				
306	311	316	321	
ttc ctg ctc agt ggc ggg gat gat ggg gcc ctc aag atc tgg gac ctt				1125
Phe Leu Leu Ser Gly Gly Asp Asp Gly Ala Leu Lys Ile Trp Asp Leu				
322	327	332	337	
cgg cag ttc aag tct ggt tcc cca gtg gcc acc ttc aag cag cac gtg				1173
Arg Gln Phe Lys Ser Gly Ser Pro Val Ala Thr Phe Lys Gln His Val				
338	343	348	353	
gcc ccc gtg acc tcc gtc gag tgg cac ccc cag gac agc ggg gtc ttt				1221
Ala Pro Val Thr Ser Val Glu Trp His Pro Gln Asp Ser Gly Val Phe				
354	359	364	369	
gca gcc tcg ggt gca gac cac cag atc aca cag tgg gac ctg gca gtg				1269
Ala Ala Ser Gly Ala Asp His Gln Ile Thr Gln Trp Asp Leu Ala Val				
370	375	380	385	
gag cgg gac cct gag gcg ggc gac gtg gag gcc gac ccc gga ctg gcc				1317
Glu Arg Asp Pro Glu Ala Gly Asp Val Glu Ala Asp Pro Gly Leu Ala				
386	391	396	401	



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acggcggcgc c atg aac ctc ctg ccg tgt aac cct cac ggc aac ggg ctg	170
Met Asn Leu Leu Pro Cys Asn Pro His Gly Asn Gly Leu	
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Leu Tyr Ala Gly Phe Asn Gln Asp His Gly Cys Phe Ala Cys Gly Met	
14 19 24 29	
gaa aat gga ttc cga gtc tat aac act gat cca cta aaa gaa aaa gag	266
Glu Asn Gly Phe Arg Val Tyr Asn Thr Asp Pro Leu Lys Glu Lys Glu	
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Lys Gln Glu Phe Leu Glu Gly Gly Val Gly His Val Glu Met Leu Phe	
46 51 56 61	
cgc tgc aac tat tta gct tta gtt ggt ggt gga aaa aag ccg aaa tac	362
Arg Cys Asn Tyr Leu Ala Leu Val Gly Gly Gly Lys Lys Pro Lys Tyr	
62 67 72 77	
cct ccc aac aaa gta atg atc tgg gat gac ctg aag aag aag act gtt	410
Pro Pro Asn Lys Val Met Ile Trp Asp Asp Leu Lys Lys Lys Thr Val	
78 83 88 93	
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Ile Glu Ile Glu Phe Ser Thr Glu Val Lys Ala Val Lys Leu Arg Arg	
94 99 104 109	
gat aga att gtg gtg gtt ttg gac tcc atg att aag gtg ttc aca ttc	506
Asp Arg Ile Val Val Val Leu Asp Ser Met Ile Lys Val Phe Thr Phe	
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aca cac aat ccc cat cag ttg cac gtc ttc gaa acc tgc tat aac ccc	554
Thr His Asn Pro His Gln Leu His Val Phe Glu Thr Cys Tyr Asn Pro	
126 131 136 141	
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Lys Gly Leu Cys Val Leu Cys Pro Asn Ser Asn Asn Ser Leu Leu Ala	
142 147 152 157	
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Phe Pro Gly Thr His Thr Gly His Val Gln Leu Val Asp Leu Ala Ser	
158 163 168 173	
acg gag aag cca ccc gtg gac att cct gca cac gag ggt gtc ctg agc	698
Thr Glu Lys Pro Pro Val Asp Ile Pro Ala His Glu Gly Val Leu Ser	
174 179 184 189	
tgc att gca ctc aac ctg cag gga aca aga att gca act gca tcc gag	746
Cys Ile Ala Leu Asn Leu Gln Gly Thr Arg Ile Ala Thr Ala Ser Glu	
190 195 200 205	
aaa ggg acg ctt ata aga ata ttt gat act tca tca ggg cat tta atc	794
Lys Gly Thr Leu Ile Arg Ile Phe Asp Thr Ser Ser Gly His Leu Ile	

206	211	216	221	
cag gaa ctg cga aga gga tct caa gca gcc aat att tac tgc atc aac				842
Gln Glu Leu Arg Arg Gly Ser Gln Ala Ala Asn Ile Tyr Cys Ile Asn				
222	227	232	237	
ttc aat cag gat gcg tcc ctc atc tgc gta tcc agc gac cac ggc aca				890
Phe Asn Gln Asp Ala Ser Leu Ile Cys Val Ser Ser Asp His Gly Thr				
238	243	248	253	
gtg cat att ttt gca gct gaa gat cca aaa agg aat aaa cag tcc agt				938
Val His Ile Phe Ala Ala Glu Asp Pro Lys Arg Asn Lys Gln Ser Ser				
254	259	264	269	
ttg gcc tca gcc agt ttc ctt cca aaa tac ttc agt tcc aag tgg agt				986
Leu Ala Ser Ala Ser Phe Leu Pro Lys Tyr Phe Ser Ser Lys Trp Ser				
270	275	280	285	
ttc tcc aag ttt cag gtt ccc tca ggc tct ccg tgc att tgt gcc ttt				1034
Phe Ser Lys Phe Gln Val Pro Ser Gly Ser Pro Cys Ile Cys Ala Phe				
286	291	296	301	
gga aca gag cca aac gcc gtc att gca att tgt gca gac ggc agc tac				1082
Gly Thr Glu Pro Asn Ala Val Ile Ala Ile Cys Ala Asp Gly Ser Tyr				
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tac aaa ttc ctg ttc aac ccc aag ggg gag tgc atc cga gat gtc tac				1130
Tyr Lys Phe Leu Phe Asn Pro Lys Gly Glu Cys Ile Arg Asp Val Tyr				
318	323	328	333	
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Ala Gln Phe Leu Glu Met Thr Asp Asp Lys Leu *				
334	339	344		
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 <222> (617)..(1933)

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Met Pro Cys Thr Cys Thr Trp Arg Asn Trp Arg  
1 5

cag tgg att cga cct tta gta gcg gtc atc tac ctg gtg tca ata gtg Gln Trp Ile Arg Pro Leu Val Ala Val Ile Tyr Leu Val Ser Ile Val 12 17 22 27	697
gtt gcg gtt ccc cta tgc gtg tgg gaa tta cag aaa ctg gag gtt gga Val Ala Val Pro Leu Cys Val Trp Glu Leu Gln Lys Leu Glu Val Gly 28 33 38 43	745
ata cac acc aag gct tgg ttt att gct gga atc ttt ttg ctg ttg act Ile His Thr Lys Ala Trp Phe Ile Ala Gly Ile Phe Leu Leu Leu Thr 44 49 54 59	793
att cct ata tca ctg tgg gtg ata ttg caa cac tta gtg cat tat aca Ile Pro Ile Ser Leu Trp Val Ile Leu Gln His Leu Val His Tyr Thr 60 65 70 75	841
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tca cag ttg ttt gcc atg tat tgt ctc ctg ctc ttt tat aaa gta cta Ser Gln Leu Phe Ala Met Tyr Cys Leu Leu Leu Phe Tyr Lys Val Leu /	1321

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Arg His Val Gly Arg	Thr Val Arg Gly His	Pro Arg Lys Lys Leu	Phe	
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ccc gag gat caa gat	caa aat gaa cat aca	agt tta tta tca tca	tca	1753
Pro Glu Asp Gln Asp	Gln Asn Glu His Thr	Ser Leu Leu Ser Ser	Ser	
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Ser Gln Asp Ala Ile	Ser Ile Ala Ser Ser	Met Pro Pro Ser Pro	Met	
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Gly His Tyr Gln Gly	Phe Gly His Thr Val	Thr Pro Gln Thr Thr	Pro	
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Thr Thr Ala Lys Ile	Ser Asp Glu Ile Leu	Ser Asp Thr Ile Gly	Glu	
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Phe Gly His Arg Leu Gln Glu Asn Phe Ser Leu Asp Leu Leu Lys Thr  
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Gln	Leu	Gly	Ile	Glu	Lys	Glu	Ala	Val	Leu	Leu	Asn	Leu	Lys	Ser	Asn	
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Gln	Glu	Leu	Ser	Glu	Gln	Gly	Thr	Ser	Phe	Ser	Gln	Thr	Cys	Leu	Thr	
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Gln	Phe	Leu	Glu	Asp	Glu	Tyr	Pro	Asp	Met	Pro	Thr	Glu	Gly	Ile	Lys	
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Asn	Tyr	Ser	Lys	Pro	Lys	Glu	Thr	Leu	Arg	Ala	Glu	Lys	Ser	Ile	Thr	



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Ser Ala Val Gly Gly Gly Tyr Thr Ala Lys Lys Thr Phe Asp Gln Trp				
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Lys Asp Met Ile Pro Asp Leu Ser Glu Tyr Lys Trp Ile Val Pro Asp				
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Ile Val Trp Glu Ile Asp Glu Tyr Ile Asp Phe Glu Lys Ile Arg Lys				
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Pro Arg Gly Ser Gly Glu Met Met Thr Arg Ser Pro Val Lys Val Thr				
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	Met Gly Gly Arg Arg
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Gly Pro Asn Arg Thr Ser Tyr Cys Arg Asn Pro	Leu Cys Glu Pro Gly
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Ser Val Arg Ser Arg Thr Arg Ser Ser Ser Gly Thr Gly Leu Ser Ser	
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Pro Pro Leu Ala Thr Gln Thr Val Val Pro Leu Gln His Cys Lys Ile	
54 59 64 69	
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Pro Glu Leu Pro Val Gln Ala Ser Ile Leu Phe Glu Leu Gln Leu Phe	
70 75 80 85	
ttc tgc cag ctc ata gca ctc ttc gtc cac tac atc <sup>4</sup> aac atc tac aag	403
Phe Cys Gln Leu Ile Ala Leu Phe Val His Tyr Ile Asn Ile Tyr Lys	
86 91 96 101	
aca gtg tgg tgg tat cca cct tcc cac cca ccc tcc cac acc tcc ctg	451
Thr Val Trp Trp Tyr Pro Pro Ser His Pro Pro Ser His Thr Ser Leu	
102 107 112 117	
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Asn Phe His Leu Ile Asp Phe Asn Leu Leu Met Val Thr Thr Ile Val	
118 123 128 133	
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Leu Gly Arg Arg Phe Ile Gly Ser Ile Val Lys Glu Ala Ser Gln Arg	
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Gly Lys Val Ser Leu Phe Arg Ser Ile Leu Leu Phe Leu Thr Arg Phe	
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Thr Val Leu Thr Ala Thr Gly Trp Ser Leu Cys Arg Ser Leu Ile His	
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Leu Phe Arg Thr Tyr Ser Phe Leu Asn Leu Leu Phe Leu Cys Tyr Pro	
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Phe Gly Met Tyr Ile Pro Phe Leu Gln Leu Asn Cys Asp Leu Arg Lys	
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Thr Ser Leu Phe Asn His Met Ala Ser Met Gly Pro Arg Glu Ala Val	
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Ser Gly Leu Ala Lys Ser Arg Asp Tyr Leu Leu Thr Leu Arg Glu Thr	
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Trp Lys Gln His Thr Arg Gln Leu Tyr Gly Pro Asp Ala Met Pro Thr	
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His Ala Cys Cys Leu Ser Pro Ser Leu Ile Arg Ser Glu Val Glu Phe	
262 267 272 277	
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Leu Lys Met Asp Phe Asn Trp Arg Met Lys Glu Val Leu Val Ser Ser	
278 283 288 293	
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Met Leu Ser Ala Tyr Tyr Val Ala Phe Val Pro Val Trp Phe Val Lys	
294 299 304 309	
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Asn Thr His Tyr Tyr Asp Lys Arg Trp Ser Cys Glu Leu Phe Leu Leu	
310 315 320 325	
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Val Ser Ile Ser Thr Ser Val Ile Leu Met Gln His Leu Leu Pro Ala	
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Ser Tyr Cys Asp Leu Leu His Lys Ala Ala Ala His Leu Gly Cys Trp	
342 347 352 357	
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Gln Lys Val Asp Pro Ala Leu Cys Ser Asn Val Leu Gln His Pro Trp	
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Thr Glu Glu Cys Met Trp Pro Gln Gly Val Leu Val Lys His Ser Lys	
374 379 384 389	
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Asn Val Tyr Lys Ala Val Gly His Tyr Asn Val Ala Ile Pro Ser Asp	
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Val Ser His Phe Arg Phe His Phe Phe Phe Ser Lys Pro Leu Arg Ile	
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Leu Asn Ile Leu Leu Leu Leu Glu Gly Ala Val Ile Val Tyr Gln Leu	
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Tyr Ser Leu Met Ser Ser Glu Lys Trp His Gln Thr Ile Ser Leu Ala	
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Leu Ile Leu Phe Ser Asn Tyr Tyr Ala Phe Phe Lys Leu Leu Arg Asp	
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Arg Leu Val Leu Gly Lys Ala Tyr Ser Tyr Ser Ala Ser Pro Gln Arg	
470 475 480 485	
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Asp Leu Asp His Arg Phe Ser \*  
486 491

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Glu Ile Leu Arg Arg Gln Ile Arg Leu Leu Gln Gly Leu Ile Asp Asp  
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Tyr Lys Thr Leu His Gly Asn Ala Pro Ala Pro Gly Thr Pro Ala Ala  
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Ser Gly Trp Gln Pro Pro Thr Tyr His Ser Gly Arg Ala Phe Ser Ala  
37 42 47 52  
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Arg Tyr Pro Arg Pro Ser Arg Arg Gly Tyr Ser Ser His His Gly Pro  
53 58 63 68  
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Ser Trp Arg Lys Lys Tyr Ser Leu Val Asn Arg Pro Pro Gly Pro Ser  
69 74 79 84  
gac cct cct gcc gac cat gct gtg cgg ccg ttg cac ggg gcc cgg ggg 343  
Asp Pro Pro Ala Asp His Ala Val Arg Pro Leu His Gly Ala Arg Gly  
85 90 95 100  
ggc cag cct cct gtc ccg cag cag cat gtc ctt gag aga cag gtc cag 391  
Gly Gln Pro Pro Val Pro Gln Gln His Val Leu Glu Arg Gln Val Gln  
101 106 111 116  
ctc agt cag ggt cag aac gtg gtc atc aaa gtt aaa ccg cca tca aag 439  
Leu Ser Gln Gly Gln Asn Val Val Ile Lys Val Lys Pro Pro Ser Lys  
117 122 127 132

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Ser Gly Ser Ala Ser Ala Ser Gly Ala Gln Arg Gly Ser Leu Glu Glu	
133 138 143 148	
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Phe Glu Asp Thr Pro Trp Ser Asp Gln Arg Pro Arg Glu Gly Glu Gly	
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Glu Pro Pro Arg Gly Gln Leu Gln Pro Ser Arg Pro Thr Arg Ala Arg	
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Arg Glu Pro Arg Arg Thr Val Ser Glu Ser Val Ile Ala Val Lys Ala	
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Gly Ser Val Gly Gly Pro Ala Arg Pro Ala Ser Gly Pro Arg Gln Ala	
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Arg Glu Ala Ser Leu Val Val Thr Cys Arg Thr Asn Lys Phe Arg Lys	
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Asn Asn Tyr Lys Trp Val Ala Ala Ser Ser Lys Ser Pro Arg Val Ala	
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Ser Ala Gly Met Ala Asn Lys Val Glu Lys Pro Gln Leu Ile Ala Asp	
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Pro Glu Pro Lys Pro Arg Lys Pro Ala Thr Ser Ser Lys Pro Gly Ser	
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Ala Pro Ser Lys Tyr Lys Trp Lys Ala Ser Ser Pro Ser Ala Ser Ser	
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Ser Gln Leu Ser Pro Val Leu Ser Arg Ser Pro Ser Gly Asp Arg Pro	
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Ala Val Gly His Ser Gly Leu Lys Pro Leu Ser Gly Glu Thr Pro Leu	
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Ser Thr Ser Leu Pro Gly Asp Lys Lys Ser Gly Thr Ser Pro Ala Ala	
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Val Thr Lys His Arg Leu Cys Arg Leu Pro Pro Ser Arg Ala His Leu	
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Pro Thr Lys Glu Ala Ser Ser Leu His Ala Val Arg Thr Ala Pro Thr	
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Ser Lys Val Ile Lys Thr Arg Tyr Arg Ile Val Lys Lys Thr Pro Ala	
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Ser Pro Leu Ser Ala Pro Pro Phe Pro Leu Ser Leu Pro Ser Trp Arg	
549 554 559 564	
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Ala Arg Arg Leu Ser Leu Ser Arg Ser Leu Val Leu Asn Arg Leu Arg	
565 570 575 580	
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Arg	Ser	Lys	Gly	Tyr	Arg	Cys	Ile	Gly	Gly	Val	Leu	Tyr	Lys	Val	Ser	
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gcc	aac	aag	ctc	tcc	aag	acc	tcc	ggc	cag	ccc	agt	gat	gcg	ggc	agc	1927
Ala	Asn	Lys	Leu	Ser	Lys	Thr	Ser	Gly	Gln	Pro	Ser	Asp	Ala	Gly	Ser	
613					618					623					628	
agg	ccc	ctc	ctg	cgc	aca	ggc	cgg	ctg	gat	cct	gca	ggc	agc	tgt	agc	1975
Arg	Pro	Leu	Leu	Arg	Thr	Gly	Arg	Leu	Asp	Pro	Ala	Gly	Ser	Cys	Ser	
629					634					639					644	
cgt	tcc	ctg	gcc	agc	cgg	gca	gtg	cag	cgc	agc	ctg	gcc	atc	atc	cgg	2023
Arg	Ser	Leu	Ala	Ser	Arg	Ala	Val	Gln	Arg	Ser	Leu	Ala	Ile	Ile	Arg	
645					650					655					660	
cag	gcg	cgg	cag	cgc	agg	gag	aag	agg	aag	gag	tac	tgc	atg	tac	tac	2071
Gln	Ala	Arg	Gln	Arg	Arg	Glu	Lys	Arg	Lys	Glu	Tyr	Cys	Met	Tyr	Tyr	
661					666					671					676	
aac	cgc	ttc	ggc	agg	tgc	aac	cgt	ggc	gag	cgc	tgc	ccc	tac	atc	cac	2119
Asn	Arg	Phe	Gly	Arg	Cys	Asn	Arg	Gly	Glu	Arg	Cys	Pro	Tyr	Ile	His	
677					682					687					692	
gat	ccc	gag	aag	gtg	gcc	gtg	tgc	acc	agg	ttt	gtc	cgg	ggc	acc	tgc	2167
Asp	Pro	Glu	Lys	Val	Ala	Val	Cys	Thr	Arg	Phe	Val	Arg	Gly	Thr	Cys	
693					698					703					708	
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Lys	Lys	Thr	Asp	Gly	Thr	Cys	Pro	Phe	Ser	His	His	Val	Ser	Lys	Glu	
709					714					719					724	
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Lys	Met	Pro	Val	Cys	Ser	Tyr	Phe	Leu	Lys	Gly	Ile	Cys	Ser	Asn	Ser	
725					730					735					740	
aac	tgt	ccc	tat	agc	cac	gtg	tac	gtg	tcc	cgc	aag	gcc	gag	gtc	tgc	2311
Asn	Cys	Pro	Tyr	Ser	His	Val	Tyr	Val	Ser	Arg	Lys	Ala	Glu	Val	Cys	
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Lys	His	Thr	Leu	Leu	Cys	Pro	Asp	Phe	Ala	Arg	Arg	Gly	Ala	Cys	Pro	
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Arg	Gly	Ala	Gln	Cys	Gln	Leu	Leu	His	Arg	Thr	Gln	Lys	Arg	His	Ser	
789					794					799					804	
cgg	cgg	gca	gcc	acg	tcc	ccc	gcc	cca	ggg	ccc	agc	gac	gca	acc	gcc	2503
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cag cgc ccc acc agg	cag acg ccc agc tgc gct gcc ctc act gcg gct	2599		
Gln Arg Pro Thr Arg	Gln Thr Pro Ser Ser Ala Ala Leu Thr Ala Ala			
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gcc gtg gct gca cct ccc cac tgc cca ggg ggg	tca gcc tct ccc tca	2647		
Ala Val Ala Ala Pro Pro His Cys Pro Gly Gly	Ser Ala Ser Pro Ser			
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tcc tgc aag gct tcc tcc tcc tcc tcc tcc	tca tcc cct ccc gct	2695		
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Ala Cys Ser Asn Arg Leu Cys Lys Leu Pro Ser Phe Ile Ser Leu Gln				
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Glu Pro Glu Ala Lys Val Leu His Thr Lys Arg Leu Tyr Arg Ala Val	
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Val Glu Ala Val His Arg Leu Asp Leu Ile Leu Cys Asn Lys Thr Ala	
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Tyr Gln Glu Val Phe Lys Pro Glu Asn Ile Ser Leu Arg Asn Lys Leu	
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Arg Glu Leu Cys Val Lys Leu Met Phe Leu His Pro Val Asp Tyr Gly	
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Arg Lys Ala Glu Glu Leu Leu Trp Arg Lys Val Tyr Tyr Glu Val Ile	
76 81 86 91	
cag ctt atc aag act aac aaa aag cac atc cac agc cgg agc act ttg	459
Gln Leu Ile Lys Thr Asn Lys Lys His Ile His Ser Arg Ser Thr Leu	
92 97 102 107	
gaa tgt gcc tac agg acg cac ctg gtt gct ggt att ggc ttc tac cag	507
Glu Cys Ala Tyr Arg Thr His Leu Val Ala Gly Ile Gly Phe Tyr Gln	
108 113 118 123	
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His Leu Leu Leu Tyr Ile Gln Ser His Tyr Gln Leu Glu Leu Gln Cys	
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tgc atc gac tgg acc cat gtc act gac ccc ctc ata gga tgc aag aag	603
Cys Ile Asp Trp Thr His Val Thr Asp Pro Leu Ile Gly Cys Lys Lys	
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Pro Val Ser Ala Ser Gly Lys Glu Met Asp Trp Ala Gln Met Ala Cys	
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His Arg Cys Leu Val Tyr Leu Gly Asp Leu Ser Arg Tyr Gln Asn Glu	
172 177 182 187	

tta gct ggc gta gat acc gag ctg cta gcc gag aga ttt tac tac caa	747
Leu Ala Gly Val Asp Thr Glu Leu Leu Ala Glu Arg Phe Tyr Tyr Gln	
188 193 198 203	
gcc ctg tca gta gct cct cag att gga atg ccc ttc aat cag ctg ggc	795
Ala Leu Ser Val Ala Pro Gln Ile Gly Met Pro Phe Asn Gln Leu Gly	
204 209 214 219	
acc ctg gca ggc agc aag tac tat aat gtg gaa gcc atg tat tgc tac	843
Thr Leu Ala Gly Ser Lys Tyr Tyr Asn Val Glu Ala Met Tyr Cys Tyr	
220 225 230 235	
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Leu Arg Cys Ile Gln Ser Glu Val Ser Phe Glu Gly Ala Tyr Gly Asn	
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Leu Lys Arg Leu Tyr Asp Lys Ala Ala Lys Met Tyr His Gln Leu Lys	
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Lys Cys Glu Thr Arg Lys Leu Ser Pro Gly Lys Lys Arg Cys Lys Asp	
268 273 278 283	
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Ile Lys Arg Leu Leu Val Asn Phe Met Tyr Leu Gln Ser Leu Leu Gln	
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Pro Lys Ser Ser Ser Val Asp Ser Glu Leu Thr Ser Leu Cys Gln Ser	
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Val Leu Glu Asp Phe Asn Leu Cys Leu Phe Tyr Leu Pro Ser Ser Pro	
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Asn Leu Ser Leu Ala Ser Glu Asp Glu Glu Glu Tyr Glu Ser Gly Tyr	
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Ala Phe Leu Pro Asp Leu Leu Ile Phe Gln Met Val Ile Ile Cys Leu	
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Met Cys Val His Ser Leu Glu Arg Ala Gly Ser Lys Gln Tyr Ser Ala	
364 369 374 379	
gcc att gcc ttc acc ctg gcc ctc ttt tcc cac ctc gtc aat cat gtc	1323
Ala Ile Ala Phe Thr Leu Ala Leu Phe Ser His Leu Val Asn His Val	
380 385 390 395	
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Asn Ile Arg Leu Gln Ala Glu Leu Glu Glu Gly Glu Asn Pro Val Pro	
396 401 406 411	

gca ttc cag agt gat ggc aca gat gaa cca gag tcc aag gaa cct gtg	1419
Ala Phe Gln Ser Asp Gly Thr Asp Glu Pro Glu Ser Lys Glu Pro Val	
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Glu Lys Glu Glu Glu Pro Asp Pro Glu Pro Pro Pro Val Thr Pro Gln	
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Val Gly Glu Gly Arg Lys Ser Arg Lys Phe Ser Arg Leu Ser Cys Leu	
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Arg Arg Arg Arg His Pro Pro Lys Val Gly Asp Asp Ser Asp Leu Ser	
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Glu Gly Phe Glu Ser Asp Ser Ser His Asp Ser Ala Arg Ala Ser Glu	
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Gly Ser Asp Ser Gly Ser Asp Lys Ser Leu Glu Gly Gly Gly Thr Ala	
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Phe Asp Ala Glu Thr Asp Ser Glu Met Asn Ser Gln Glu Ser Arg Ser	
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Asp Leu Glu Asp Met Glu Glu Glu Glu Gly Thr Arg Ser Pro Thr Leu	
524 529 534 539	
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Glu Pro Pro Arg Gly Arg Ser Glu Ala Pro Asp Ser Leu Asn Gly Pro	
540 545 550 555	
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Leu Gly Pro Ser Glu Ala Ser Ile Ala Ser Asn Leu Gln Ala Met Ser	
556 561 566 571	
acc cag atg ttc cag act aag cgc tgc ttc cga ctg gcc ccc acc ttt	1899
Thr Gln Met Phe Gln Thr Lys Arg Cys Phe Arg Leu Ala Pro Thr Phe	
572 577 582 587	
agc aac ctg ctc ctc cag ccc acc acc aac cct cat acc tcg gcc agc	1947
Ser Asn Leu Leu Leu Gln Pro Thr Thr Asn Pro His Thr Ser Ala Ser	
588 593 598 603	
cac agg cct tgc gtc aat ggg gat gta gac aag cct tca gag cca gcc	1995
His Arg Pro Cys Val Asn Gly Asp Val Asp Lys Pro Ser Glu Pro Ala	
604 609 614 619	
tct gag gag ggc tct gag tcg gag ggg agt gag tcc agt gga cgc tcc	2043
Ser Glu Glu Gly Ser Glu Ser Glu Gly Ser Glu Ser Ser Gly Arg Ser	
620 625 630 635	
tgt cgg aat gag cgc agc atc cag gag aag ctt cag gtc ctg atg gcc	2091

Cys	Arg	Asn	Glu	Arg	Ser	Ile	Gln	Glu	Lys	Leu	Gln	Val	Leu	Met	Ala		
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Glu	Gly	Leu	Leu	Pro	Ala	Val	Lys	Val	Phe	Leu	Asp	Trp	Leu	Arg	Thr		
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aac	ccc	gac	ctc	atc	atc	gtg	tgt	gca	cag	agc	tct	caa	agt	ctg	tgg	2187	
Asn	Pro	Asp	Leu	Ile	Ile	Val	Cys	Ala	Gln	Ser	Ser	Gln	Ser	Leu	Trp		
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aac	cgc	ctg	tct	gtg	ttg	ctg	aat	ctg	ttg	cct	gct	gct	ggt	gaa	ctc	2235	
Asn	Arg	Leu	Ser	Val	Leu	Leu	Asn	Leu	Leu	Pro	Ala	Ala	Gly	Glu	Leu		
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cag	gag	tct	ggc	ctg	gcc	ttg	tgt	cct	gag	gtc	caa	gat	ctt	ctt	gaa	2283	
Gln	Glu	Ser	Gly	Leu	Ala	Leu	Cys	Pro	Glu	Val	Gln	Asp	Leu	Leu	Glu		
700					705					710					715		
ggt	tgt	gaa	ctg	cct	gac	ctc	ccc	tct	agc	ctt	ctg	ctc	cca	gag	gac	2331	
Gly	Cys	Glu	Leu	Pro	Asp	Leu	Pro	Ser	Ser	Leu	Leu	Leu	Pro	Glu	Asp		
716					721					726					731		
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Met	Ala	Leu	Arg	Asn	Leu	Pro	Pro	Leu	Arg	Ala	Ala	His	Arg	Arg	Phe		
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Asn	Phe	Asp	Thr	Asp	Arg	Pro	Leu	Leu	Ser	Thr	Leu	Glu	Glu	Ser	Val		
748					753					758					763		
gtg	cgc	atc	tgc	tgc	atc	cgc	agc	ttt	ggt	cat	ttc	atc	gcc	cgc	ctg	2475	
Val	Arg	Ile	Cys	Cys	Ile	Arg	Ser	Phe	Gly	His	Phe	Ile	Ala	Arg	Leu		
764					769					774					779		
caa	ggc	agc	atc	ctg	cag	ttc	aac	cca	gag	gtt	ggc	atc	ttc	gtc	agc	2523	
Gln	Gly	Ser	Ile	Leu	Gln	Phe	Asn	Pro	Glu	Val	Gly	Ile	Phe	Val	Ser		
780					785					790					795		
att	gcc	cag	tct	gag	cag	gag	agc	ctg	ctg	cag	cag	gcc	cag	gca	cag	2571	
Ile	Ala	Gln	Ser	Glu	Gln	Glu	Ser	Leu	Leu	Gln	Gln	Ala	Gln	Ala	Gln		
796					801					806					811		
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Phe	Arg	Met	Ala	Gln	Glu	Glu	Ala	Arg	Arg	Asn	Arg	Leu	Met	Arg	Asp		
812					817					822					827		
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Met	Ala	Gln	Leu	Arg	Leu	Gln	Leu	Glu	Val	Ser	Gln	Leu	Glu	Gly	Ser		
828					833					838					843		
ctg	cag	cag	ccc	aag	gcc	cag	tca	gcc	atg	tct	ccc	tac	ctc	gtc	cct	2715	
Leu	Gln	Gln	Pro	Lys	Ala	Gln	Ser	Ala	Met	Ser	Pro	Tyr	Leu	Val	Pro		
844					849					854					859		
gac	acc	cag	gcc	ctc	tgc	cac	cat	ctc	cct	gtc	atc	cgc	caa	ctg	gcc	2763	
Asp	Thr	Gln	Ala	Leu	Cys	His	His	Leu	Pro	Val	Ile	Arg	Gln	Leu	Ala		

860	865	870	875			
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Thr Ser Gly Arg Phe	Ile Val Ile Ile Pro	Arg Thr Val Ile Asp	Gly			
876	881	886	891			
ctg gat ttg ctg aag	aag gaa cac cca ggg	gcc cgg gat ggg att	cgg	2859		
Leu Asp Leu Leu Lys	Lys Glu His Pro Gly	Ala Arg Asp Gly Ile	Arg			
892	897	902	907			
tac ctg gag gca gag	ttt aaa aaa gga aac	agg tac att cgc tgc	cag	2907		
Tyr Leu Glu Ala Glu	Phe Lys Lys Gly Asn	Arg Tyr Ile Arg Cys	Gln			
908	913	918	923			
aaa gag gtg gga aag	agc ttt gag cgg cat	aag ctg aag agg cag	gat	2955		
Lys Glu Val Gly Lys	Ser Phe Glu Arg His	Lys Leu Lys Arg Gln	Asp			
924	929	934	939			
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Ala Asp Ala Trp Thr	Leu Tyr Lys Ile Leu	Asp Ser Cys Lys Gln	Leu			
940	945	950	955			
act ctg gcc cag ggg	gca ggt gag gag gat	ccg agt ggc atg gtg	acc	3051		
Thr Leu Ala Gln Gly	Ala Gly Glu Glu Asp	Pro Ser Gly Met Val	Thr			
956	961	966	971			
atc atc aca ggc ctt	cca ctg gac aac ccc	agc gtg ctt tca ggc	ccc	3099		
Ile Ile Thr Gly Leu	Pro Leu Asp Asn Pro	Ser Val Leu Ser Gly	Pro			
972	977	982	987			
atg cag gca gcc ctg	cag gcc gct gcc cac	gcc agt gtg gac atc	aag	3147		
Met Gln Ala Ala Leu	Gln Ala Ala Ala His	Ala Ser Val Asp Ile	Lys			
988	993	998	1003			
aat gtt ctg gac ttc	tac aag cag tgg aag	gaa att ggt tga tact	gac	3196		
Asn Val Leu Asp Phe	Tyr Lys Gln Trp Lys	Glu Ile Gly *				
1004	1009	1014				
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tcgtgtgctc ctctcctgc tgcaggggct gcacatccca ttgccccact tctgctttgt 3856
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agtctgggaa atcctggggg gagtggagtc acccactcc cagttgctgg cagagactga 4516
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<210> 419
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<213> Homo sapiens

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                  Met Leu Ala Leu Arg Val Ala Arg Gly Ser Trp Gly
                   1             5             10

gcc ctg cgc ggc gcc gct tgg gct ccg gga acg cgg ccg agt aag cga 158
Ala Leu Arg Gly Ala Ala Trp Ala Pro Gly Thr Arg Pro Ser Lys Arg
 13             18             23             28

cgc gcc tgc tgg gcc ctg ctg ccg ccc gtg ccc tgc tgc ttg ggc tgc 206
Arg Ala Cys Trp Ala Leu Leu Pro Pro Val Pro Cys Cys Leu Gly Cys
 29             34             39             44

ctg gcc gaa cgc tgg agg ctg cgt ccg gcc gct ctt ggc ttg cgg ctg 254
Leu Ala Glu Arg Trp Arg Leu Arg Pro Ala Ala Leu Gly Leu Arg Leu
 45             50             55             60

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ccc ggg atc ggc cag cgg aac cac tgt tgc ggc gcg ggg aag gcg gct	302
Pro Gly Ile Gly Gln Arg Asn His Cys Ser Gly Ala Gly Lys Ala Ala	
61 66 71 76	
ccc agg cca gcg gcc gga gcg ggc gcc gct gcc gaa gcc ccg ggc ggc	350
Pro Arg Pro Ala Ala Gly Ala Gly Ala Ala Glu Ala Pro Gly Gly	
77 82 87 92	
cag tgg ggc ccg gcg agc acc ccc agc ctg tat gaa aac cca tgg aca	398
Gln Trp Gly Pro Ala Ser Thr Pro Ser Leu Tyr Glu Asn Pro Trp Thr	
93 98 103 108	
atc ccg aat atg ttg tca atg acg aga att ggc ttg gcc cca gtt ctg	446
Ile Pro Asn Met Leu Ser Met Thr Arg Ile Gly Leu Ala Pro Val Leu	
109 114 119 124	
ggc tat ttg att att gaa gaa gat ttt aat att gca cta gga gtt ttt	494
Gly Tyr Leu Ile Ile Glu Glu Asp Phe Asn Ile Ala Leu Gly Val Phe	
125 130 135 140	
gct tta gct gga cta aca gat ttg ttg gat gga ttt att gct cga aac	542
Ala Leu Ala Gly Leu Thr Asp Leu Leu Asp Gly Phe Ile Ala Arg Asn	
141 146 151 156	
tgg gcc aat caa aga tca gct ttg gga agt gct ctt gat cca ctt gct	590
Trp Ala Asn Gln Arg Ser Ala Leu Gly Ser Ala Leu Asp Pro Leu Ala	
157 162 167 172	
gat aaa ata ctt atc agt atc tta tat gtt agc ttg acc tat gca gat	638
Asp Lys Ile Leu Ile Ser Ile Leu Tyr Val Ser Leu Thr Tyr Ala Asp	
173 178 183 188	
ctt att cca gtt cca ctt act tac atg atc att tgc aga gat gta atg	686
Leu Ile Pro Val Pro Leu Thr Tyr Met Ile Ile Ser Arg Asp Val Met	
189 194 199 204	
ttg att gct gct gtt ttt tat gtc aga tac cga act ctt cca aca cca	734
Leu Ile Ala Ala Val Phe Tyr Val Arg Tyr Arg Thr Leu Pro Thr Pro	
205 210 215 220	
gtc ctc tgc cag cga aca ctt gcc aag tat ttc aat cct tgc tat gcc	782
Val Leu Cys Gln Arg Thr Leu Ala Lys Tyr Phe Asn Pro Cys Tyr Ala	
221 226 231 236	
act gct agg tta aaa cca aca ttc atc agc aag gtg aat aca gca gtc	830
Thr Ala Arg Leu Lys Pro Thr Phe Ile Ser Lys Val Asn Thr Ala Val	
237 242 247 252	
cag tta atc ttg gtg gca gct tct ttg gca gct cca gtt ttc aac tat	878
Gln Leu Ile Leu Val Ala Ala Ser Leu Ala Ala Pro Val Phe Asn Tyr	
253 258 263 268	
gct gac agc att tat ctt cag ata cta tgg tgt ttt aca gct ttc acc	926
Ala Asp Ser Ile Tyr Leu Gln Ile Leu Trp Cys Phe Thr Ala Phe Thr	
269 274 279 284	

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aca gct gca tca gct tat agt tac tat cat tat ggc cgg aag act gtt      974
Thr Ala Ala Ser Ala Tyr Ser Tyr Tyr His Tyr Gly Arg Lys Thr Val
285                      290                      295                      300

cag gtg ata aaa gac tga tgaaag tcatccctca ctgtagtaa ggaagcagta      1028
Gln Val Ile Lys Asp *
301                      306

tacatcaatg ggaacagggc ccatggaaat gtacaggagt ttccctattt tgggtgttcag      1088

cttgaaaaag gacttgtcag aatcaactgt gtcacaaaa tttaagtaat gtgcattgaa      1148

aataagggtg atcatgggaa tatgcagaat ttccaatgta tttttaaata caaataaaat      1208
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<213> Homo sapiens

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<222> (59) .. (1030)

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Met Ser Glu Arg Lys Val Leu Asn Lys Tyr Tyr Pro Pro Asp Phe Asp
1          5          10          15

cca tca aag atc ccc aaa ctc aag ctc ccc aaa gac cgg cag tac gtg      154
Pro Ser Lys Ile Pro Lys Leu Lys Leu Pro Lys Asp Arg Gln Tyr Val
17          22          27          32

gtg cgg ctg atg gcc ccc ttc aac atg agg tgt aag acg tgc gga gaa      202
Val Arg Leu Met Ala Pro Phe Asn Met Arg Cys Lys Thr Cys Gly Glu
33          38          43          48

tac atc tac aag ggg aag aaa ttc aat gct cgg aag gag acg gtg cag      250
Tyr Ile Tyr Lys Gly Lys Lys Phe Asn Ala Arg Lys Glu Thr Val Gln
49          54          59          64

aac gag gtc tac ctg ggc ctg ccc atc ttc cgc ttt tac atc aag tgc      298
Asn Glu Val Tyr Leu Gly Leu Pro Ile Phe Arg Phe Tyr Ile Lys Cys
65          70          75          80

acg cgc tgc ctg gca gag atc acc ttc aag aca gac cct gaa aac aca      346
Thr Arg Cys Leu Ala Glu Ile Thr Phe Lys Thr Asp Pro Glu Asn Thr
81          86          91          96

gac tac acc atg gag cat gga gcc acg cgg aat ttc cag gct gag aag      394
Asp Tyr Thr Met Glu His Gly Ala Thr Arg Asn Phe Gln Ala Glu Lys
97          102          107          112

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Leu Leu Glu Glu Glu Glu Lys Arg Val Gln Lys Glu Arg Glu Asp Glu	
113 118 123 128	
gag ctg aac aac ccc atg aag gtg ctg gag aac cgg acc aag gac tcc	490
Glu Leu Asn Asn Pro Met Lys Val Leu Glu Asn Arg Thr Lys Asp Ser	
129 134 139 144	
aag ctg gag atg gag gtg ctg gag aac ctc cag gag ctg aaa gac ctg	538
Lys Leu Glu Met Glu Val Leu Glu Asn Leu Gln Glu Leu Lys Asp Leu	
145 150 155 160	
aac cag cgg cag gcg cac gtg gac ttc gag gct atg ctg agg cag cac	586
Asn Gln Arg Gln Ala His Val Asp Phe Glu Ala Met Leu Arg Gln His	
161 166 171 176	
cgc ctg tcg gag gag gag cgg cgg agg cag cag cag gag gag gac gag	634
Arg Leu Ser Glu Glu Glu Arg Arg Arg Gln Gln Gln Glu Glu Asp Glu	
177 182 187 192	
cag gag acc gcg gcc ctg ttg gag gaa gcc aga aag cga aga ctg ctg	682
Gln Glu Thr Ala Ala Leu Leu Glu Glu Ala Arg Lys Arg Arg Leu Leu	
193 198 203 208	
gag gac tcc gac tca gag gat gag gct gct ccc tcg ccc ctg cag cca	730
Glu Asp Ser Asp Ser Glu Asp Glu Ala Ala Pro Ser Pro Leu Gln Pro	
209 214 219 224	
gcc ctt cgg ccc aac ccc acc gcc atc ctg gat gag gcc cca aag ccc	778
Ala Leu Arg Pro Asn Pro Thr Ala Ile Leu Asp Glu Ala Pro Lys Pro	
225 230 235 240	
aag agg aag gtg gag gtc tgg gag cag agc gtt ggc agc ctg ggc agc	826
Lys Arg Lys Val Glu Val Trp Glu Gln Ser Val Gly Ser Leu Gly Ser	
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cgg ccc ccg ctg tcg agg ctg gtc gtg gtg aag aag gca aag gcc gac	874
Arg Pro Pro Leu Ser Arg Leu Val Val Val Lys Lys Ala Lys Ala Asp	
257 262 267 272	
ccg gac tgc agc aac ggg cag cct cag gcg gcc ccc acc cca gga gcc	922
Pro Asp Cys Ser Asn Gly Gln Pro Gln Ala Ala Pro Thr Pro Gly Ala	
273 278 283 288	
ccg cag aac agg aag gag gcc aac cct aca ccc ctg acg cct ggc gcg	970
Pro Gln Asn Arg Lys Glu Ala Asn Pro Thr Pro Leu Thr Pro Gly Ala	
289 294 299 304	
tcc tcc ctg agc caa ctg ggt gca tac ctg gac agt gac gac agc aac	1018
Ser Ser Leu Ser Gln Leu Gly Ala Tyr Leu Asp Ser Asp Asp Ser Asn	
305 310 315 320	
gag agc aac tga gcc ctcccaggac cccctcacgg ggtcaaagtc acacgtccag	1073
Gly Ser Asn *	
321	

cttcagccac attgaggcca gcattgctgg tggtcagggc aggaggcctt ggcgtgactg 1133  
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Met Ala Phe Trp  
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gcg ggg ggt tcg ccc agc gtc gtg gac tat ttc cct agc gag gac ttc 164  
Ala Gly Gly Ser Pro Ser Val Val Asp Tyr Phe Pro Ser Glu Asp Phe  
5 10 15 20  
tac cgc tgc ggc tac tgc aag aac gag tcg ggc agc cgc tcc aat ggc 212  
Tyr Arg Cys Gly Tyr Cys Lys Asn Glu Ser Gly Ser Arg Ser Asn Gly  
21 26 31 36  
atg tgg gca cat tcc atg aca gta cag gat tat cag gat ctc ata gac 260  
Met Trp Ala His Ser Met Thr Val Gln Asp Tyr Gln Asp Leu Ile Asp  
37 42 47 52  
cga gga tgg cga aga agt gga aaa tat gtg tac aaa cct gtc atg aat 308  
Arg Gly Trp Arg Arg Ser Gly Lys Tyr Val Tyr Lys Pro Val Met Asn  
53 58 63 68  
caa aca tgt tgt cct cag tac aca ata agg tgc cga cct tta caa ttt 356  
Gln Thr Cys Cys Pro Gln Tyr Thr Ile Arg Cys Arg Pro Leu Gln Phe  
69 74 79 84  
cag cct tca aaa tct cac aag aag gtt ttg aaa aaa atg ttg aaa ttt 404

Gln Pro Ser Lys Ser His Lys Lys Val Leu Lys Lys Met Leu Lys Phe	
85 90 95 100	
ctg gct aaa ggg gag gtt ccc aaa gga agt tgt gag gat gag ccc atg	452
Leu Ala Lys Gly Glu Val Pro Lys Gly Ser Cys Glu Asp Glu Pro Met	
101 106 111 116	
gat tcc aca atg gat gat gct gtt gcg ggt gac ttt gca ttg ata aat	500
Asp Ser Thr Met Asp Asp Ala Val Ala Gly Asp Phe Ala Leu Ile Asn	
117 122 127 132	
aaa ctg gat ata cag tgt gat ctt aaa aca ctc agt gat gac atc aaa	548
Lys Leu Asp Ile Gln Cys Asp Leu Lys Thr Leu Ser Asp Asp Ile Lys	
133 138 143 148	
gag agt tta gag agt gaa gga aaa aat tca aag aaa gaa gaa cct cag	596
Glu Ser Leu Glu Ser Glu Gly Lys Asn Ser Lys Lys Glu Glu Pro Gln	
149 154 159 164	
gaa tta ctt cag tca caa gat ttc gta gga gag aag ttg ggc tct ggt	644
Glu Leu Leu Gln Ser Gln Asp Phe Val Gly Glu Lys Leu Gly Ser Gly	
165 170 175 180	
gaa ccg tca cat tca gtt aaa gtt cac aca gtt cct aag cca ggc aaa	692
Glu Pro Ser His Ser Val Lys Val His Thr Val Pro Lys Pro Gly Lys	
181 186 191 196	
ggg gct gat ttg agt aag cct cca tgt cga aaa gca aag gaa atc cgg	740
Gly Ala Asp Leu Ser Lys Pro Pro Cys Arg Lys Ala Lys Glu Ile Arg	
197 202 207 212	
aaa gaa agg aaa agg tta aaa cta atg cag cag aac cca gct gga gaa	788
Lys Glu Arg Lys Arg Leu Lys Leu Met Gln Gln Asn Pro Ala Gly Glu	
213 218 223 228	
ctt gag ggt ttc cag gct caa ggt cac cca cca tct ttg ttt cca cca	836
Leu Glu Gly Phe Gln Ala Gln Gly His Pro Pro Ser Leu Phe Pro Pro	
229 234 239 244	
aag gct aaa tcc aac cag cca aaa tca ctc gaa gat tta att ttt gag	884
Lys Ala Lys Ser Asn Gln Pro Lys Ser Leu Glu Asp Leu Ile Phe Glu	
245 250 255 260	
tct tta cca gag aat gca tca cac aag tta gag gtg agg gtg gtg aga	932
Ser Leu Pro Glu Asn Ala Ser His Lys Leu Glu Val Arg Val Val Arg	
261 266 271 276	
tca tct cca cca agt tcg cag ttc aaa gcc aca ctt ctg gag tct tac	980
Ser Ser Pro Pro Ser Ser Gln Phe Lys Ala Thr Leu Leu Glu Ser Tyr	
277 282 287 292	
cag gtc tat aaa cgt tac cag atg gtt att cac aag aac cca cct gat	1028
Gln Val Tyr Lys Arg Tyr Gln Met Val Ile His Lys Asn Pro Pro Asp	
293 298 303 308	
acg cca acc gaa agc cag ttc aca aga ttc ctt tgc agt tca ccc ttg	1076
Thr Pro Thr Glu Ser Gln Phe Thr Arg Phe Leu Cys Ser Ser Pro Leu	

309	314	319	324	
gag gca gag act ccc cct aat ggg cca gat tgt ggc tat ggc tcc ttt				1124
Glu Ala Glu Thr Pro Pro Asn Gly Pro Asp Cys Gly Tyr Gly Ser Phe				
325	330	335	340	
cac cag cag tac tgg ctt gac gga aag atc att gct gtg ggg gtg att				1172
His Gln Gln Tyr Trp Leu Asp Gly Lys Ile Ile Ala Val Gly Val Ile				
341	346	351	356	
gac atc ctc cca aac tgt gta tca tct gtg tat ttg tac tac gat cct				1220
Asp Ile Leu Pro Asn Cys Val Ser Ser Val Tyr Leu Tyr Tyr Asp Pro				
357	362	367	372	
gat tat tcg ttt ttg tct ttg ggc gtc tac tct gca cta cga gaa att				1268
Asp Tyr Ser Phe Leu Ser Leu Gly Val Tyr Ser Ala Leu Arg Glu Ile				
373	378	383	388	
gct ttt act agg cag ctt cat gag aaa act tct caa ctc agc tat tat				1316
Ala Phe Thr Arg Gln Leu His Glu Lys Thr Ser Gln Leu Ser Tyr Tyr				
389	394	399	404	
tat atg ggt ttc tac att cat tca tgt ccc aag atg aaa tat aag ggt				1364
Tyr Met Gly Phe Tyr Ile His Ser Cys Pro Lys Met Lys Tyr Lys Gly				
405	410	415	420	
cag tat aga cct tct gat ttg ctg tgc cct gag aca tat gtt tgg gta				1412
Gln Tyr Arg Pro Ser Asp Leu Leu Cys Pro Glu Thr Tyr Val Trp Val				
421	426	431	436	
ccc att gag caa tgc ctg cct tca ctt gaa aac tcc aag tac tgc cgt				1460
Pro Ile Glu Gln Cys Leu Pro Ser Leu Glu Asn Ser Lys Tyr Cys Arg				
437	442	447	452	
ttc aac cag gac cca gaa gca gtg gat gag gat cgc agt acg gaa cct				1508
Phe Asn Gln Asp Pro Glu Ala Val Asp Glu Asp Arg Ser Thr Glu Pro				
453	458	463	468	
gac cga ttg cag gtg ttt cac aag aga gcc atc atg cct tac ggt gtt				1556
Asp Arg Leu Gln Val Phe His Lys Arg Ala Ile Met Pro Tyr Gly Val				
469	474	479	484	
tat aag aaa cag cag aaa gac cca agt gag gag gct gct gtt ctg cag				1604
Tyr Lys Lys Gln Gln Lys Asp Pro Ser Glu Glu Ala Ala Val Leu Gln				
485	490	495	500	
tac gcc agc ctg gtg ggg cag aag tgc tcc gag cgg atg ctg ctg ttc				1652
Tyr Ala Ser Leu Val Gly Gln Lys Cys Ser Glu Arg Met Leu Leu Phe				
501	506	511	516	
aga aac tga cctgttc gcctctgccg ggaagttcct gtgttggtgat gatgattgt				1708
Arg Asn *				
517				
gccaggatac atattcagta cctgtgggga aataactgtc accaccacaca aattagacat				1768
ttttatatttg actatctatg gcttttaaaa aatattttgt ggcaatgtat ctgtgagaat				1828

ctcatagtta atataaagat tttaaaactg cattatgacc tagcccccac aattgggatt 1888  
tatcattttg gaggattctt tctagagcaa gatatgctca aattctctctg tttgtatttt 1948  
gtaaaatgaa gaagtgaatc taagtaactt aatcacagtt gtgcattttt tttggttctg 2008  
ttagagaaat taaaacagac tgtttctca ggccattttt aaactgaact tatgctagga 2068  
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Met  
1  
gag gac tct gaa gca ctg ggc ttc gaa cac atg ggc ctc gat ccc cgg 165  
Glu Asp Ser Glu Ala Leu Gly Phe Glu His Met Gly Leu Asp Pro Arg  
2 7 12 17  
ctc ctt cag gct gtc acc gat ctg ggc tgg tgc cga cct acg ctg atc 213  
Leu Leu Gln Ala Val Thr Asp Leu Gly Trp Ser Arg Pro Thr Leu Ile  
18 23 28 33  
cag gag aag gcc atc cca ctg gcc cta gaa ggg aag gac ctc ctg gct 261  
Gln Glu Lys Ala Ile Pro Leu Ala Leu Glu Gly Lys Asp Leu Leu Ala  
34 39 44 49  
cgg gcc cgc acg ggc tcc ggg aag acg gcc gct tat gct att ccg atg 309  
Arg Ala Arg Thr Gly Ser Gly Lys Thr Ala Ala Tyr Ala Ile Pro Met  
50 55 60 65  
ctg cag ctg ttg ctc cat agg aag gcg aca ggt ccg gtg gta gaa cag 357  
Leu Gln Leu Leu Leu His Arg Lys Ala Thr Gly Pro Val Val Glu Gln  
66 71 76 81  
gca gtg aga ggc ctt gtt ctt gtt cct acc aag gag ctg gca cgg caa 405  
Ala Val Arg Gly Leu Val Leu Val Pro Thr Lys Glu Leu Ala Arg Gln  
82 87 92 97  
gca cag tcc atg att cag cag ctg gct acc tac tgt gct cgg gat gtc 453

Ala Gln Ser Met Ile Gln Gln Leu Ala Thr Tyr Cys Ala Arg Asp Val	
98 103 108 113	
cga gtg gcc aat gtc tca gct gct gaa gac tca gtc tct cag aga gct	501
Arg Val Ala Asn Val Ser Ala Ala Glu Asp Ser Val Ser Gln Arg Ala	
114 119 124 129	
gtg ctg atg gag aag cca gat gtg gta gta ggg acc cca tct cgc ata	549
Val Leu Met Glu Lys Pro Asp Val Val Val Gly Thr Pro Ser Arg Ile	
130 135 140 145	
tta agc cac ttg cag caa gac agc ctg aaa ctt cgt gac tcc ctg gag	597
Leu Ser His Leu Gln Gln Asp Ser Leu Lys Leu Arg Asp Ser Leu Glu	
146 151 156 161	
ctt ttg gtg gtg gac gaa gct gac ctt ctt ttt tcc ttt ggc ttt gaa	645
Leu Leu Val Val Asp Glu Ala Asp Leu Leu Phe Ser Phe Gly Phe Glu	
162 167 172 177	
gaa gag ctc aag agt ctc ctc tgt cac ttg ccc cgg att tac cag gct	693
Glu Glu Leu Lys Ser Leu Leu Cys His Leu Pro Arg Ile Tyr Gln Ala	
178 183 188 193	
ttt ctc atg tca gct act ttt aac gag gac gta caa gca ctc aag gag	741
Phe Leu Met Ser Ala Thr Phe Asn Glu Asp Val Gln Ala Leu Lys Glu	
194 199 204 209	
ctg ata tta cat aac ccg gtt acc ctt aag tta cag gag tcc cag ctg	789
Leu Ile Leu His Asn Pro Val Thr Leu Lys Leu Gln Glu Ser Gln Leu	
210 215 220 225	
cct ggg cca gac cag tta cag cag ttt cag gtg gtc tgt gag act gag	837
Pro Gly Pro Asp Gln Leu Gln Gln Phe Gln Val Val Cys Glu Thr Glu	
226 231 236 241	
gaa gac aaa ttc ctc ctg ctg tat gcc ctg ctc aag ctg tca ttg att	885
Glu Asp Lys Phe Leu Leu Leu Tyr Ala Leu Leu Lys Leu Ser Leu Ile	
242 247 252 257	
cgg ggc aag tct ctg ctc ttt gtc aac act cta gaa cgg agt tac cgg	933
Arg Gly Lys Ser Leu Leu Phe Val Asn Thr Leu Glu Arg Ser Tyr Arg	
258 263 268 273	
cta cgc ctg ttc ttg gaa cag ttc agc atc ccc acc tgt gtg ctc aat	981
Leu Arg Leu Phe Leu Glu Gln Phe Ser Ile Pro Thr Cys Val Leu Asn	
274 279 284 289	
gga gag ctt cca ctg cgc tcc agg tgc cac atc atc tca cag ttc aac	1029
Gly Glu Leu Pro Leu Arg Ser Arg Cys His Ile Ile Ser Gln Phe Asn	
290 295 300 305	
caa ggc ttc tac gac tgt gtc ata gca act gat gct gaa gtc ctg ggg	1077
Gln Gly Phe Tyr Asp Cys Val Ile Ala Thr Asp Ala Glu Val Leu Gly	
306 311 316 321	
gcc cca gtc aag ggc aag cgt cgg ggc cga ggg ccc aaa ggg gac aag	1125
Ala Pro Val Lys Gly Lys Arg Arg Gly Arg Gly Pro Lys Gly Asp Lys	

322	327	332	337	
gcc tct gat ccg gaa gca ggt gtg gcc cgg ggc ata gac ttc cac cat				1173
Ala Ser Asp Pro Glu Ala Gly Val Ala Arg Gly Ile Asp Phe His His				
338	343	348	353	
gtg tct gct gtg ctc aac ttt gat ctt ccc cca acc cct gag gcc tac				1221
Val Ser Ala Val Leu Asn Phe Asp Leu Pro Pro Thr Pro Glu Ala Tyr				
354	359	364	369	
atc cat cga gct ggc agg aca gca cgc gct aac aac cca ggc ata gtc				1269
Ile His Arg Ala Gly Arg Thr Ala Arg Ala Asn Asn Pro Gly Ile Val				
370	375	380	385	
tta acc ttt gtg ctt ccc acg gag cag ttc cac tta ggc aag att gag				1317
Leu Thr Phe Val Leu Pro Thr Glu Gln Phe His Leu Gly Lys Ile Glu				
386	391	396	401	
gag ctt ctc agt gga gag aac agg ggc ccc att ctg ctc ccc tac cag				1365
Glu Leu Leu Ser Gly Glu Asn Arg Gly Pro Ile Leu Leu Pro Tyr Gln				
402	407	412	417	
ttc cgg atg gag gag atc gag ggc ttc cgc tat cgc tgc agg gat gcc				1413
Phe Arg Met Glu Glu Ile Glu Gly Phe Arg Tyr Arg Cys Arg Asp Ala				
418	423	428	433	
atg cgc tca gtg act aag cag gcc att cgg gag gca aga ttg aag gag				1461
Met Arg Ser Val Thr Lys Gln Ala Ile Arg Glu Ala Arg Leu Lys Glu				
434	439	444	449	
atc aag gaa gag ctt ctg cat tct gag aag ctt aag aca tac ttt gaa				1509
Ile Lys Glu Glu Leu Leu His Ser Glu Lys Leu Lys Thr Tyr Phe Glu				
450	455	460	465	
gac aac cct agg gac ctc cag ctg ctg cgg cat gac cta cct ttg cac				1557
Asp Asn Pro Arg Asp Leu Gln Leu Leu Arg His Asp Leu Pro Leu His				
466	471	476	481	
ccc gca gtg gtg aag ccc cac ctg ggc cat gtt cct gac tac ctg gtt				1605
Pro Ala Val Val Lys Pro His Leu Gly His Val Pro Asp Tyr Leu Val				
482	487	492	497	
cct cct gct ctc cgt ggc ctg gtg cgc cct cac aag aag cgg aag aag				1653
Pro Pro Ala Leu Arg Gly Leu Val Arg Pro His Lys Lys Arg Lys Lys				
498	503	508	513	
ctg tct tcc tct tgt agg aag gcc aag aga gca aag tcc cag aac cca				1701
Leu Ser Ser Ser Cys Arg Lys Ala Lys Arg Ala Lys Ser Gln Asn Pro				
514	519	524	529	
ctg cgc agc ttc aag cac aaa gga aag aaa ttc aga ccc aca gcc aag				1749
Leu Arg Ser Phe Lys His Lys Gly Lys Lys Phe Arg Pro Thr Ala Lys				
530	535	540	545	
ccc tcc tga gggtgtt gggcctctct ggagctgagc acattgtgga gcacaggctt				1805
Pro Ser *				
546				

acacccttcg tggacaggcg aggcctctggt gcttactgca cagcctgaac agacagttct 1865  
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 ccactcgctg gctgccaccg ggagcagagg ggggctcggc cgccccctcc cacatcagtc 180  
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 caaccacccc ccaaccttgg cccagccctg agccccaggg acc atg agc ggg ggc 715  
 Met Ser Gly Gly  
 1  
 aag aag aag agt agt ttc caa atc acc agc gtc acc acg gac tat gag 763  
 Lys Lys Lys Ser Ser Phe Gln Ile Thr Ser Val Thr Thr Asp Tyr Glu  
 5 10 15 20  
 ggc cct ggg agc cca ggg gct tcg gat ccc cct acc cca cag ccc cca 811  
 Gly Pro Gly Ser Pro Gly Ala Ser Asp Pro Pro Thr Pro Gln Pro Pro  
 21 26 31 36  
 / acc ggg ccc ccg ccc cgc ctg ccc aat ggg gag ccc agc ccc gat ccg 859  
 Thr Gly Pro Pro Pro Arg Leu Pro Asn Gly Glu Pro Ser Pro Asp Pro  
 37 42 47 52



ggg ggc aag ggc acc ccc cgg aat ggc tcc cca cca cct ggg gcc cct	907
Gly Gly Lys Gly Thr Pro Arg Asn Gly Ser Pro Pro Pro Gly Ala Pro	
53 58 63 68	
tcc tcc cgt ttc cgg gtg gtg aag ctg ccc cac ggc ctg gga gag cct	955
Ser Ser Arg Phe Arg Val Val Lys Leu Pro His Gly Leu Gly Glu Pro	
69 74 79 84	
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Tyr Arg Arg Gly Arg Trp Thr Cys Val Asp Val Tyr Glu Arg Asp Leu	
85 90 95 100	
gag ccc cac agc ttc ggc gga ctc ctg gag gga att cga ggg gcc tca	1051
Glu Pro His Ser Phe Gly Gly Leu Leu Glu Gly Ile Arg Gly Ala Ser	
101 106 111 116	
ggg ggc gcc ggg ggc aga tct ttg gat tcc agg ttg gag ctg gcc agc	1099
Gly Gly Ala Gly Gly Arg Ser Leu Asp Ser Arg Leu Glu Leu Ala Ser	
117 122 127 132	
ctc ggc ctg ggc gcc ccc acc cca ccg tca ggc ctg tct cag ggc ccc	1147
Leu Gly Leu Gly Ala Pro Thr Pro Pro Ser Gly Leu Ser Gln Gly Pro	
133 138 143 148	
acc tcc tgg ctc cgt cca ccc ccc acc tct cct gga cct cag gcc cgc	1195
Thr Ser Trp Leu Arg Pro Pro Pro Thr Ser Pro Gly Pro Gln Ala Arg	
149 154 159 164	
tcc ttc act ggg gga ctg ggc cag ctg gtg gtg ccc agc aaa gcc aag	1243
Ser Phe Thr Gly Gly Leu Gly Gln Leu Val Val Pro Ser Lys Ala Lys	
165 170 175 180	
gca gag aaa ccc cca ctg tcg gcc tcc tca ccc cag cag cgc ccc cca	1291
Ala Glu Lys Pro Pro Leu Ser Ala Ser Ser Pro Gln Gln Arg Pro Pro	
181 186 191 196	
gag cct gag acc ggt gag agt gcg ggc aca tcc cgg gct gcc acg ccc	1339
Glu Pro Glu Thr Gly Glu Ser Ala Gly Thr Ser Arg Ala Ala Thr Pro	
197 202 207 212	
ctg ccc tct ctg agg gtg gaa gcg gag gct ggg ggc tca ggg gcc agg	1387
Leu Pro Ser Leu Arg Val Glu Ala Glu Ala Gly Gly Ser Gly Ala Arg	
213 218 223 228	
acc cct cca ctg tcc cgg agg aaa gct gta gac atg cgg ctg cgg atg	1435
Thr Pro Pro Leu Ser Arg Arg Lys Ala Val Asp Met Arg Leu Arg Met	
229 234 239 244	
gag ttg ggt gct cca gaa gag atg ggg cag gtg ccc cca ctt gac tct	1483
Glu Leu Gly Ala Pro Glu Glu Met Gly Gln Val Pro Pro Leu Asp Ser	
245 250 255 260	
cgc ccc agc tcc cca gcc ctc tac ttc acc cac gat gcc agc ctg gtt	1531
Arg Pro Ser Ser Pro Ala Leu Tyr Phe Thr His Asp Ala Ser Leu Val	
261 266 271 276	

cac aaa tct cca gac ccc ttc gga gca gta gca gct cag aag ttc agc	1579
His Lys Ser Pro Asp Pro Phe Gly Ala Val Ala Ala Gln Lys Phe Ser	
277 282 287 292	
ctg gcc cac tcc atg ttg gcc atc agt ggt cac cta gac agc gac gat	1627
Leu Ala His Ser Met Leu Ala Ile Ser Gly His Leu Asp Ser Asp Asp	
293 298 303 308	
gat agt ggc tcc gga agc ctg gtt ggc att gac aac aaa atc gag caa	1675
Asp Ser Gly Ser Gly Ser Leu Val Gly Ile Asp Asn Lys Ile Glu Gln	
309 314 319 324	
gcc atg gac ttg gtg aag tcc cac ctc atg ttt gcg gtc cgg gag gag	1723
Ala Met Asp Leu Val Lys Ser His Leu Met Phe Ala Val Arg Glu Glu	
325 330 335 340	
gtg gag gtg ctg aag gag cag atc cgg gaa ttg gcg gag cgg aac gct	1771
Val Glu Val Leu Lys Glu Gln Ile Arg Glu Leu Ala Glu Arg Asn Ala	
341 346 351 356	
gcg ctg gag cag gag aat ggg ctg ctg cgc gcc ctg gcc agc ccg gag	1819
Ala Leu Glu Gln Glu Asn Gly Leu Leu Arg Ala Leu Ala Ser Pro Glu	
357 362 367 372	
cag ctg gct cag ctg ccc tcc tcg ggg gtc cca cgg ctt ggg ccc cct	1867
Gln Leu Ala Gln Leu Pro Ser Ser Gly Val Pro Arg Leu Gly Pro Pro	
373 378 383 388	
gcg ccc aat ggg ccc tcc gtc tga gcctcccttc ccttacaatg tgcctttggg	1921
Ala Pro Asn Gly Pro Ser Val *	
389 394	
gctgcccggc cttgcgtcag ccgcctgccc cctcttccta tgcagcttta atgtccccgt	1981
gtccccgggg tgggagttca aggctcagta atggcctggg cccccggccc ctgccccatc	2041
tcctcatcat cccagcctt gatggaggag ggagggcttc aggacggggc gtcagagggg	2101
gccccctctg ggaggggaacc aacccccacc ctccctcctg ggacccccca gcagtagacg	2161
gcttggggga gtcggaggct ccccggcaga cccccaccc ccattctgtt cccttgaggt	2221
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tcaacatgta tgtttggtgt gggggcgggg ggcaagatac agacatttag tccatagcac 180

tgtatgtctt aaaattattg tttaaggcac cgttcacctc tggaaaagga ttcttcacct 240

ggaagttcat caacaagctt gttgataaaa aagcaaagag agacttcaga cagccgatc 300

atg aga gct tta aaa gaa ctt gat gag gga aaa ata ttt aaa aat tgg 348  
Met Arg Ala Leu Lys Glu Leu Asp Glu Gly Lys Ile Phe Lys Asn Trp  
1 5 10 15

ggg aca cag aca gag aaa gag gac acc tca aat ata aat cct cgg caa 396  
Gly Thr Gln Thr Glu Lys Glu Asp Thr Ser Asn Ile Asn Pro Arg Gln  
17 22 27 32

act gaa act tca gtt aat gca agt cgt tct cca gaa aag tgt gcc caa 444  
Thr Glu Thr Ser Val Asn Ala Ser Arg Ser Pro Glu Lys Cys Ala Gln  
33 38 43 48

cag aga caa aag aga ctt aat tcg gcc tca cag aga tca tca tct tta 492  
Gln Arg Gln Lys Arg Leu Asn Ser Ala Ser Gln Arg Ser Ser Ser Leu  
49 54 59 64

cca cct tca aat cgt aaa tca agt act cca aca aaa aga gag att atg 540  
Pro Pro Ser Asn Arg Lys Ser Ser Thr Pro Thr Lys Arg Glu Ile Met  
65 70 75 80

cta aca cca gtg act gtg gct tat agt cca aag cga tcc cct aaa gaa 588  
Leu Thr Pro Val Thr Val Ala Tyr Ser Pro Lys Arg Ser Pro Lys Glu  
81 86 91 96

aac ttg tcc cca gga ttt agt cat ctg ctt agc aaa aat gag agc agt 636  
Asn Leu Ser Pro Gly Phe Ser His Leu Leu Ser Lys Asn Glu Ser Ser  
97 102 107 112

cca att cga ttt gat ata ctt ttg gat gat tta gat act gtt cct gtg 684  
Pro Ile Arg Phe Asp Ile Leu Leu Asp Asp Leu Asp Thr Val Pro Val  
113 118 123 128

tct aca tta caa cgt acc aat cca aga aag caa ctc cag ttt ctt cct 732  
Ser Thr Leu Gln Arg Thr Asn Pro Arg Lys Gln Leu Gln Phe Leu Pro  
129 134 139 144

cta gat gac tcg gaa gaa aaa act tat tct gag aaa gcc acc gat aac 780  
Leu Asp Asp Ser Glu Glu Lys Thr Tyr Ser Glu Lys Ala Thr Asp Asn  
145 150 155 160

cat gtt aat cat agc tct tgc cct gaa ccg gtg cca aat gga gtg aag 828  
His Val Asn His Ser Ser Cys Pro Glu Pro Val Pro Asn Gly Val Lys  
161 166 171 176

aaa gta tct gtg aga aca gcc tgg gag aag aat aaa tca gtt agc tac 876

Lys Val Ser Val Arg Thr Ala Trp Glu Lys Asn Lys Ser Val Ser Tyr	
177 182 187 192	
gaa cag tgt aag ccg gtt tca gtc act cca cag ggg aat gat ttt gaa	924
Glu Gln Cys Lys Pro Val Ser Val Thr Pro Gln Gly Asn Asp Phe Glu	
193 198 203 208	
tat aca gca aaa att cgg acc cta gct gaa aca gaa cga ttt ttt gat	972
Tyr Thr Ala Lys Ile Arg Thr Leu Ala Glu Thr Glu Arg Phe Phe Asp	
209 214 219 224	
gaa ctt aca aaa gaa aag gac cag att gag gca gca cta agc agg atg	1020
Glu Leu Thr Lys Glu Lys Asp Gln Ile Glu Ala Ala Leu Ser Arg Met	
225 230 235 240	
cct tct cct gga gga cga atc act tta cag aca aga tta aat cag gaa	1068
Pro Ser Pro Gly Gly Arg Ile Thr Leu Gln Thr Arg Leu Asn Gln Glu	
241 246 251 256	
gcc ttg gaa gat cgt ttg gaa agg att aat cga gaa ctg ggt tca gtt	1116
Ala Leu Glu Asp Arg Leu Glu Arg Ile Asn Arg Glu Leu Gly Ser Val	
257 262 267 272	
cgc atg acg cta aag aaa ttc cat gtt ttg cgc acc tct gca aat ctt	1164
Arg Met Thr Leu Lys Lys Phe His Val Leu Arg Thr Ser Ala Asn Leu	
273 278 283 288	
tga gatt ttagccatt aaatTTTgag acatTTTtgt ttgcactaat gtataattat	1221
* 289	
gcagtcagaa aaggcaaact atTTTgtact gTTTataagc cTTcaaacag tagTTTTtaca	1281
atcatgctat tcttacactt gctatTTTtat acttcaaata gccacatatt ttcaagatat	1341
TTTTgttatg ctcaggaatc tcttgtatat tttactatTTT aaaaagcatt atTTTttaaT	1401
agtatctgtc tccaatTTTat atcaagaata aggaaatata aacagaggaa gcagcttTgtt	1461
tctaaacaaa tagtTgttatc cTTTttacaat taactgcaca tcaatTTTtat agactTgttc	1521
tacattgtaa atacaattca gTTTtttaaaa aataaagctt actagcttca cataaatgaa	1581
aaaaaaaaaa aa	1593

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (301)..(1065)

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aaccctaatt acctcgtaaa gacccacact ccacacacca tcacattgaa gattagggct	120
tcaacatgta tgtttggtgt gggggcgggg ggcaagatac agacatttag tccatagcac	180
tgtatgtctt aaaattattg tttaaggcac cgttcacctc tggaaaagga ttcttcacct	240
ggaagttcat caacaagctt gttgataaaa aagcaaagag agacttcaga cagccgac	300
atg aga gct tta aaa gaa ctt gat gag gga aaa ata ttt aaa aat tgg	348
Met Arg Ala Leu Lys Glu Leu Asp Glu Gly Lys Ile Phe Lys Asn Trp	
1 5 10 15	
ggg aca cag aca gag aaa gag gac acc tca aat ata aat cct cgg caa	396
Gly Thr Gln Thr Glu Lys Glu Asp Thr Ser Asn Ile Asn Pro Arg Gln	
17 22 27 32	
act gaa act tca gtt aat gca agt cgt tct cca gaa aag tgt gcc caa	444
Thr Glu Thr Ser Val Asn Ala Ser Arg Ser Pro Glu Lys Cys Ala Gln	
33 38 43 48	
cag aga caa aag aga ctt aat tcg gcc tca cag aga tca tca tct tta	492
Gln Arg Gln Lys Arg Leu Asn Ser Ala Ser Gln Arg Ser Ser Ser Leu	
49 54 59 64	
cca cct tca aat cgt aaa tca agt act cca aca aaa aga gag att atg	540
Pro Pro Ser Asn Arg Lys Ser Ser Thr Pro Thr Lys Arg Glu Ile Met	
65 70 75 80	
cta aca cca gtg act gtg gct tat agt cca aag cga tcc cct aaa gaa	588
Leu Thr Pro Val Thr Val Ala Tyr Ser Pro Lys Arg Ser Pro Lys Glu	
81 86 91 96	
aac ttg tcc cca gga ttt agt cat ctg ctt agc aaa aat gag agc agt	636
Asn Leu Ser Pro Gly Phe Ser His Leu Leu Ser Lys Asn Glu Ser Ser	
97 102 107 112	
cca att cga gaa aaa act tat tct gag aaa gcc acc gat aac cat gtt	684
Pro Ile Arg Glu Lys Thr Tyr Ser Glu Lys Ala Thr Asp Asn His Val	
113 118 123 128	
aat cat agc tct tgc cct gaa ccg gtg cca aat gga gtg aag aaa gta	732
Asn His Ser Ser Cys Pro Glu Pro Val Pro Asn Gly Val Lys Lys Val	
129 134 139 144	
tct gtg aga aca gcc tgg gag aag aat aaa tca gtt agc tac gaa cag	780
Ser Val Arg Thr Ala Trp Glu Lys Asn Lys Ser Val Ser Tyr Glu Gln	
145 150 155 160	
tgt aag ccg gtt tca gtc act cca cag ggg aat gat ttt gaa tat aca	828
Cys Lys Pro Val Ser Val Thr Pro Gln Gly Asn Asp Phe Glu Tyr Thr	
161 166 171 176	
gca aaa att cgg acc cta gct gaa aca gaa cga ttt ttt gat gaa ctt	876
Ala Lys Ile Arg Thr Leu Ala Glu Thr Glu Arg Phe Phe Asp Glu Leu	

177	182	187	192	
aca aaa gaa aag gac	cag att gag gca gca	cta agc agg atg cct	tct	924
Thr Lys Glu Lys Asp	Gln Ile Glu Ala Ala	Leu Ser Arg Met Pro	Ser	
193	198	203	208	
cct gga gga cga atc	act tta cag aca aga	tta aat cag gaa gcc	ttg	972
Pro Gly Gly Arg Ile	Thr Leu Gln Thr Arg	Leu Asn Gln Glu Ala	Leu	
209	214	219	224	
gaa gat cgt ttg gaa	agg att aat cga gaa	ctg ggt tca gtt cgc	atg	1020
Glu Asp Arg Leu Glu	Arg Ile Asn Arg Glu	Leu Gly Ser Val Arg	Met	
225	230	235	240	
acg cta aag aaa ttc	cat gtt ttg cgc acc	tct gca aat ctt tga	gat	1068
Thr Leu Lys Lys Phe	His Val Leu Arg Thr	Ser Ala Asn Leu *		
241	246	251		
ttgtagccat taaat	tttga gacatttttg	tttgcactaa tgtataatta	tgcagtcaga	1128
aaaggcaaac tatttt	gtac tgtttataag	ccttcaaaca gtagttttac	aatcatgcta	1188
ttcttacact tgctat	tttta tacttcaa	aat agccacatat	tttcaagata	1248
ttttt gttat				
gctcaggaat ctctt	gtata ttttactatt	taaaaagcat tattttt	aaa tagtatctgt	1308
ctccaattta tatca	aagaat aaggaa	atat aaacagagga	agcagcttgt	1368
ttctaaacaa				
atagtgttat ccttt	tacaa ttaactgcac	atcaatttta tagacttg	tt ctacattgta	1428
aatacaattc agttt	ttaaa aaataaagct	tactagcttc acataa	atga aaaaaaaaa	1488
aaa				1491

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 <212> DNA  
 <213> Homo sapiens

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tcgggctggac ccggaaccca gaggacgcga cacc	atg act tat gct tat ctc 112
	Met Thr Tyr Ala Tyr Leu
	1
ttc aag tat atc atc atc gga gac aca ggt gtg	ggg aag tca tgt ctc 160
Phe Lys Tyr Ile Ile Ile Gly Asp Thr Gly Val	Gly Lys Ser Cys Leu
7	12 17 22

ctc ctg cag ttt aca gat aag cgg ttc cag cct gtc cac gac ctc aca	208
Leu Leu Gln Phe Thr Asp Lys Arg Phe Gln Pro Val His Asp Leu Thr	
23 28 33 38	
ata ggt gtg gag ttt gga gct cgt atg gtc aac att gat gga aaa caa	256
Ile Gly Val Glu Phe Gly Ala Arg Met Val Asn Ile Asp Gly Lys Gln	
39 44 49 54	
atc aaa ctg caa atc tgg gat acg gct ggg caa gaa tcc ttc cgt tct	304
Ile Lys Leu Gln Ile Trp Asp Thr Ala Gly Gln Glu Ser Phe Arg Ser	
55 60 65 70	
atc acc cgt tcc tac tac agg gga gca gct gga gca ctg ctg gtg tac	352
Ile Thr Arg Ser Tyr Tyr Arg Gly Ala Ala Gly Ala Leu Leu Val Tyr	
71 76 81 86	
gac att aca agg cgt gaa acc ttc aac cac ctg acc tca tgg tta gag	400
Asp Ile Thr Arg Arg Glu Thr Phe Asn His Leu Thr Ser Trp Leu Glu	
87 92 97 102	
gat gcc cgg cag cac tct agt tcc aac atg gtt atc atg ctc att ggg	448
Asp Ala Arg Gln His Ser Ser Ser Asn Met Val Ile Met Leu Ile Gly	
103 108 113 118	
aat aag agt gac cta gag tcc cgc agg gat gtg aag aga gaa gaa gga	496
Asn Lys Ser Asp Leu Glu Ser Arg Arg Asp Val Lys Arg Glu Glu Gly	
119 124 129 134	
gag gcc ttt gct agg gag cat gga ctt ata ttc atg gaa act tca gcc	544
Glu Ala Phe Ala Arg Glu His Gly Leu Ile Phe Met Glu Thr Ser Ala	
135 140 145 150	
aaa aca gcc tgc aat gtt gaa gag gcc ttc att aac aca gcc aaa gaa	592
Lys Thr Ala Cys Asn Val Glu Glu Ala Phe Ile Asn Thr Ala Lys Glu	
151 156 161 166	
ata tat agg aag atc cag cag ggt tta ttt gat gtc cac aat gag gca	640
Ile Tyr Arg Lys Ile Gln Gln Gly Leu Phe Asp Val His Asn Glu Ala	
167 172 177 182	
aat ggc atc aag att ggg ccc caa cag tca att tca aca tca gtg gga	688
Asn Gly Ile Lys Ile Gly Pro Gln Gln Ser Ile Ser Thr Ser Val Gly	
183 188 193 198	
ccc agt gcc tcc cag cgg aac tct cgt gac ata ggg tcc aac tct ggc	736
Pro Ser Ala Ser Gln Arg Asn Ser Arg Asp Ile Gly Ser Asn Ser Gly	
199 204 209 214	
tgc tgc tga acatctg gcttgaactt tttttgtcct tcttgaata gcttcagatc	792
Cys Cys *	
215	
aataggctta atgaaagagg tctttcttga aaaaaaaaaa a	833

<210> 427  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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<400> 427

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 Met Ala Ala Pro Arg  
 1

gta ttc cca ctt tcc tgt gcg gtg cag cag tat gcc tgg ggg aag atg 162  
 Val Phe Pro Leu Ser Cys Ala Val Gln Gln Tyr Ala Trp Gly Lys Met  
 6 11 16 21

ggt tcc aac agc gaa gtg gcg cgg ctg ttg gcc agc agt gat cca ctg 210  
 Gly Ser Asn Ser Glu Val Ala Arg Leu Leu Ala Ser Ser Asp Pro Leu  
 22 27 32 37

gcc cag atc gca gag gac aag cct tat gca gag ttg tgg atg ggg act 258  
 Ala Gln Ile Ala Glu Asp Lys Pro Tyr Ala Glu Leu Trp Met Gly Thr  
 38 43 48 53

cac ccc cga ggg gat gcc aag atc ctt gac aac cgc atc tca cag aag 306  
 His Pro Arg Gly Asp Ala Lys Ile Leu Asp Asn Arg Ile Ser Gln Lys  
 54 59 64 69

acc cta agc cag tgg att gct gag aac cag gac agc ttg ggc tca aag 354  
 Thr Leu Ser Gln Trp Ile Ala Glu Asn Gln Asp Ser Leu Gly Ser Lys  
 70 75 80 85

gtc aag gac acc ttt aat ggc aac ctg ccc ttc ctc ttc aaa gtg ctc 402  
 Val Lys Asp Thr Phe Asn Gly Asn Leu Pro Phe Leu Phe Lys Val Leu  
 86 91 96 101

tca gtt gaa aca ccc ctg tcc atc cag gca cac cct aac aag gag ctg 450  
 Ser Val Glu Thr Pro Leu Ser Ile Gln Ala His Pro Asn Lys Glu Leu  
 102 107 112 117

gca gag aag ctg cac ctc cag gct ccg cag cac tac ccc gat gcc aac 498  
 Ala Glu Lys Leu His Leu Gln Ala Pro Gln His Tyr Pro Asp Ala Asn  
 118 123 128 133

cac aag cca gag atg gcc att gcc ctc acc ccc ttc cag ggc ttg tgt 546  
 His Lys Pro Glu Met Ala Ile Ala Leu Thr Pro Phe Gln Gly Leu Cys  
 134 139 144 149

ggc ttc cgg cca gtt gag gag att gta acc ttt cta aag aag gtg cct 594  
 Gly Phe Arg Pro Val Glu Glu Ile Val Thr Phe Leu Lys Lys Val Pro  
 150 155 160 165

gag ttt cag ttc ctg att gga gat gag gca gca aca cac ctg aag cag 642



Glu Phe Gln Phe Leu Ile Gly Asp Glu Ala Ala Thr His Leu Lys Gln	
166 171 176 181	
acc atg agc cat gac tcc cag gct gtg gcc tcc tct ctg cag agc tgt	690
Thr Met Ser His Asp Ser Gln Ala Val Ala Ser Ser Leu Gln Ser Cys	
182 187 192 197	
ttc tcc cac ctg atg aag agt gag aag aag gtg gtg gtg gaa cag ctc	738
Phe Ser His Leu Met Lys Ser Glu Lys Lys Val Val Val Glu Gln Leu	
198 203 208 213	
aac ctg ttg gtg aag cgg atc tcc cag caa gcg gct gcc gga aac aac	786
Asn Leu Leu Val Lys Arg Ile Ser Gln Gln Ala Ala Ala Gly Asn Asn	
214 219 224 229	
atg gag gac atc ttt ggg gag ctt ttg cta cag ctg cac cag cag tac	834
Met Glu Asp Ile Phe Gly Glu Leu Leu Leu Gln Leu His Gln Gln Tyr	
230 235 240 245	
cca ggt gat atc ggc tgc ttt gcc atc tac ttc ctg aac ctg ctt acc	882
Pro Gly Asp Ile Gly Cys Phe Ala Ile Tyr Phe Leu Asn Leu Leu Thr	
246 251 256 261	
ctg aag cct ggg gag gcc atg ttt ctg gag gcc aac gta ccc cat gcc	930
Leu Lys Pro Gly Glu Ala Met Phe Leu Glu Ala Asn Val Pro His Ala	
262 267 272 277	
tac ctg aaa gga gac tgc gtg gag tgc atg gcg tgt tca gac aac aca	978
Tyr Leu Lys Gly Asp Cys Val Glu Cys Met Ala Cys Ser Asp Asn Thr	
278 283 288 293	
gtt cgt gct ggc ctg aca ccc aag ttc att gat gtg cca acc ctg tgt	1026
Val Arg Ala Gly Leu Thr Pro Lys Phe Ile Asp Val Pro Thr Leu Cys	
294 299 304 309	
gaa atg ctc agc tat acc cct agc tcc agc aag gac agg ctc ttt ctc	1074
Glu Met Leu Ser Tyr Thr Pro Ser Ser Ser Lys Asp Arg Leu Phe Leu	
310 315 320 325	
cca aca cgg agt cag gaa gac ccc tac ctc tca atc tat gac ccc cct	1122
Pro Thr Arg Ser Gln Glu Asp Pro Tyr Leu Ser Ile Tyr Asp Pro Pro	
326 331 336 341	
gta cca gac ttc acc att atg aag acg gag gtc cct ggc tct gtc act	1170
Val Pro Asp Phe Thr Ile Met Lys Thr Glu Val Pro Gly Ser Val Thr	
342 347 352 357	
gaa tac aag gtc ttg gca ctg gac tct gcc agc atc ctc ctg atg gta	1218
Glu Tyr Lys Val Leu Ala Leu Asp Ser Ala Ser Ile Leu Leu Met Val	
358 363 368 373	
cag ggg aca gtg ata gcc agc aca ccc aca acc cag aca cca atc cct	1266
Gln Gly Thr Val Ile Ala Ser Thr Pro Thr Thr Gln Thr Pro Ile Pro	
374 379 384 389	
ctg caa cgt ggt ggc gtg ctc ttc att ggg gcc aat gag agt gtc tca	1314
Leu Gln Arg Gly Gly Val Leu Phe Ile Gly Ala Asn Glu Ser Val Ser	

390	395	400	405	
ctg aag ctt act gag ccg aag gac ctg ctg ata ttc cgt gcc tgc tgt				1362
Leu Lys Leu Thr Glu Pro Lys Asp Leu Leu Ile Phe Arg Ala Cys Cys				
406	411	416	421	
ctg ctg taa aggctgc agcctcccca gctctcctct gccagccacc cttaaattcca				1418
Leu Leu *				
422				
gccaacctca cctcctcggg cccagctcaa gcccccttcc ttgctctgga ccccttaggt				1478
ataccctgga agagctgggg tgggggagga gggagcgtga aggtagtgc tcctgaacac				1538
accaggtgg aaccatcttt ggggaggaga ggcccggtgtg aggggtctga tactcccttt				1598
gtcttccttc tctactcctc gctacacctg agccaggctc ttgccaactc tgttccagcc				1658
tatggcttta ggctagctgt taaatatgtg acccagcatt agctcagcat ctgtcagagc				1718
aagagaccag gtaatttcta agaacagggt tctagcgatg ggactgcca tttcctcagc				1778
tgcagaggag gaaagggaaa gggtaggcct gtagactaac gctgtttaca cccttgttct				1838
gtcaaagcaa ttaaagatca cttgtgttga gaaaaaaaaa aaaa				1882

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (81)..(2459)

<400> 428	
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aggactcgcg cggaggcgag	
atg cta cca gcc ggc gag atc ggc gcc tct	110
Met Leu Pro Ala Gly Glu Ile Gly Ala Ser	
1 5	
cct gca gcc ccg tgc tgc tct gaa agt ggt gac gaa agg aag aac ctc	158
Pro Ala Ala Pro Cys Cys Ser Glu Ser Gly Asp Glu Arg Lys Asn Leu	
11 16 21 26	
gag gag aaa agt gac ata aat gtt aca gtt ctt att gga agt aaa caa	206
Glu Glu Lys Ser Asp Ile Asn Val Thr Val Leu Ile Gly Ser Lys Gln	
27 32 37 42	
gtc agt gaa ggt aca gat aat ggt gat ctc cct tct tat gtg tct gca	254
Val Ser Glu Gly Thr Asp Asn Gly Asp Leu Pro Ser Tyr Val Ser Ala	
43 48 53 58	

ttc ata gaa aag gaa gtt gga aat gac ctt aaa tct tta aag aaa ctt	302
Phe Ile Glu Lys Glu Val Gly Asn Asp Leu Lys Ser Leu Lys Lys Leu	
59 64 69 74	
gat aaa ctc ata gaa cag agg aca gta agt aaa atg cag tta gaa gaa	350
Asp Lys Leu Ile Glu Gln Arg Thr Val Ser Lys Met Gln Leu Glu Glu	
75 80 85 90	
cag gta ctt aca att tca tca gaa att cct aaa aga att cga agt gcc	398
Gln Val Leu Thr Ile Ser Ser Glu Ile Pro Lys Arg Ile Arg Ser Ala	
91 96 101 106	
tta aaa aat gca gaa gaa tca aag caa ttt ctt aat cag ttt ctg gag	446
Leu Lys Asn Ala Glu Glu Ser Lys Gln Phe Leu Asn Gln Phe Leu Glu	
107 112 117 122	
cag gaa act cat ctc ttc agc gcc att aac agc cat ttg ctg act gcg	494
Gln Glu Thr His Leu Phe Ser Ala Ile Asn Ser His Leu Leu Thr Ala	
123 128 133 138	
caa cct tgg atg gac gat ctt gga acc atg att agc cag att gaa gag	542
Gln Pro Trp Met Asp Asp Leu Gly Thr Met Ile Ser Gln Ile Glu Glu	
139 144 149 154	
atc gaa cgt cat ctt gct tac ctt aaa tgg att tca caa att gaa gaa	590
Ile Glu Arg His Leu Ala Tyr Leu Lys Trp Ile Ser Gln Ile Glu Glu	
155 160 165 170	
cta agt gat aac att cag caa tat ctg atg acc aat aat gta ccg gag	638
Leu Ser Asp Asn Ile Gln Gln Tyr Leu Met Thr Asn Asn Val Pro Glu	
171 176 181 186	
gca gcc tcc act cta gtg tct atg gca gaa ctt gac att aaa ctt cag	686
Ala Ala Ser Thr Leu Val Ser Met Ala Glu Leu Asp Ile Lys Leu Gln	
187 192 197 202	
gaa tca tct tgt act cat ctt ctt ggt ttc atg aga gcc aca gtt aaa	734
Glu Ser Ser Cys Thr His Leu Leu Gly Phe Met Arg Ala Thr Val Lys	
203 208 213 218	
ttc tgg cat aaa att ctc aag gac aag ctt aca agt gat ttt gag gaa	782
Phe Trp His Lys Ile Leu Lys Asp Lys Leu Thr Ser Asp Phe Glu Glu	
219 224 229 234	
att tta gca cag ctt cat tgg cca ttc atc gca ccc cct caa tca caa	830
Ile Leu Ala Gln Leu His Trp Pro Phe Ile Ala Pro Pro Gln Ser Gln	
235 240 245 250	
act gtt ggc tta agt cga cct gcc agt gcc ccg gag ata tac agt tac	878
Thr Val Gly Leu Ser Arg Pro Ala Ser Ala Pro Glu Ile Tyr Ser Tyr	
251 256 261 266	
ctg gag aca ctg ttt tgt cag ctt ttg aaa cta caa acc tca gat gaa	926
Leu Glu Thr Leu Phe Cys Gln Leu Leu Lys Leu Gln Thr Ser Asp Glu	
267 272 277 282	
tta ctt act gag cca aag caa ctc cca gaa aaa tac tct ctt cct gcc	974

Leu Leu Thr Glu Pro Lys Gln Leu Pro Glu Lys Tyr Ser Leu Pro Ala	
283 288 293 298	
tcc cct tct gtc atc ctg ccc atc cag gtt atg ctg act cct ctt cag	1022
Ser Pro Ser Val Ile Leu Pro Ile Gln Val Met Leu Thr Pro Leu Gln	
299 304 309 314	
aag agg ttc agg tat cac ttc aga ggg aac cgg cag act aat gtg tta	1070
Lys Arg Phe Arg Tyr His Phe Arg Gly Asn Arg Gln Thr Asn Val Leu	
315 320 325 330	
agc aag cca gaa tgg tac ttg gct caa gta ctt atg tgg att gga aac	1118
Ser Lys Pro Glu Trp Tyr Leu Ala Gln Val Leu Met Trp Ile Gly Asn	
331 336 341 346	
cat act gaa ttt ctg gat gag aag att cag cca ata tta gac aaa gta	1166
His Thr Glu Phe Leu Asp Glu Lys Ile Gln Pro Ile Leu Asp Lys Val	
347 352 357 362	
ggc tct ttg gta aac gca agg ctt gaa ttt tct cgg ggc ctt atg atg	1214
Gly Ser Leu Val Asn Ala Arg Leu Glu Phe Ser Arg Gly Leu Met Met	
363 368 373 378	
ctg gtt ctt gag aag tta gcc act gat att cct tgt ctg cta tat gat	1262
Leu Val Leu Glu Lys Leu Ala Thr Asp Ile Pro Cys Leu Leu Tyr Asp	
379 384 389 394	
gac aat ctc ttc tgt cat ttg gtg gat gaa gta ctc ttg ttt gaa agg	1310
Asp Asn Leu Phe Cys His Leu Val Asp Glu Val Leu Leu Phe Glu Arg	
395 400 405 410	
gag cta cac agt gtt cat ggc tat cct ggc act ttt gct agt tgt atg	1358
Glu Leu His Ser Val His Gly Tyr Pro Gly Thr Phe Ala Ser Cys Met	
411 416 421 426	
cat att cta tca gag gaa acc tgt ttt cag aga tgg ttg acg gtg gag	1406
His Ile Leu Ser Glu Glu Thr Cys Phe Gln Arg Trp Leu Thr Val Glu	
427 432 437 442	
aga aaa ttt gct ctt caa aaa atg gac tca atg ctt tcc tca gaa gct	1454
Arg Lys Phe Ala Leu Gln Lys Met Asp Ser Met Leu Ser Ser Glu Ala	
443 448 453 458	
gcc tgg gta tcg caa tat aag gat atc act gac gtg gat gaa atg aaa	1502
Ala Trp Val Ser Gln Tyr Lys Asp Ile Thr Asp Val Asp Glu Met Lys	
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Val Pro Asp Cys Ala Glu Thr Phe Met Thr Leu Leu Leu Val Ile Thr	
475 480 485 490	
gac agg tat aaa aat ctt ccc aca gct tcc cga aag ctt cag ttc ctg	1598
Asp Arg Tyr Lys Asn Leu Pro Thr Ala Ser Arg Lys Leu Gln Phe Leu	
491 496 501 506	
gag tta cag aag gac tta gta gat gat ttt agg ata cga tta aca caa	1646
Glu Leu Gln Lys Asp Leu Val Asp Asp Phe Arg Ile Arg Leu Thr Gln	

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Val Met Lys Glu Glu Thr Arg Ala Ser Leu Gly Phe Arg Tyr Cys Ala				
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att ctt aat gct gtg aac tac atc tca aca gta cta gca gat tgg gct				1742
Ile Leu Asn Ala Val Asn Tyr Ile Ser Thr Val Leu Ala Asp Trp Ala				
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Asp Asn Val Phe Phe Leu Gln Leu Gln Gln Ala Ala Leu Glu Val Phe				
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Ala Glu Asn Asn Thr Leu Ser Lys Leu Gln Leu Gly Gln Leu Ala Ser				
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atg gag agc tct gtc ttt gat gac atg att aac ctc tta gaa cgt tta				1886
Met Glu Ser Ser Val Phe Asp Asp Met Ile Asn Leu Leu Glu Arg Leu				
587	592	597	602	
aag cat gat atg ttg acc cgt caa gta gac cac gtt ttt aga gaa gtt				1934
Lys His Asp Met Leu Thr Arg Gln Val Asp His Val Phe Arg Glu Val				
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Lys Asp Ala Ala Lys Leu Tyr Lys Lys Glu Arg Trp Leu Ser Leu Pro				
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Ser Gln Ser Glu Gln Ala Val Met Ser Leu Ser Ser Ser Ala Cys Pro				
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Cys Phe Ser Leu Phe Lys Ile Phe Trp Gln Met Leu Val Glu Lys Leu				
667	672	677	682	
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Asp Val Tyr Ile Tyr Gln Glu Ile Ile Leu Ala Asn His Phe Asn Glu				
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Gly Gly Ala Ala Gln Leu Gln Phe Asp Met Thr Arg Asn Leu Phe Pro				
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Leu Phe Ser His Tyr Cys Lys Arg Pro Glu Asn Tyr Phe Lys His Ile				
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Lys Glu Ala Cys Ile Val Leu Asn Leu Asn Val Gly Ser Ala Leu Leu				
731	736	741	746	



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Pro Ile Gln Tyr Glu Pro Val Leu Cys Ser Arg Thr Thr Cys Arg Ala	
53 58 63 68	
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Val Leu Asn Pro Leu Cys Gln Val Asp Tyr Arg Ala Lys Leu Trp Ala	
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Cys Asn Phe Cys Tyr Gln Arg Asn Gln Phe Pro Pro Ser Tyr Ala Gly	
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Ile Glu Tyr Val Val Leu Arg Gly Pro Gln Met Pro Leu Ile Phe Leu	
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Tyr Val Val Asp Thr Cys Met Glu Asp Glu Asp Leu Gln Ala Leu Lys	
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Glu Ser Met Gln Met Ser Leu Ser Leu Leu Pro Pro Thr Ala Leu Val	
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Gly Leu Ile Thr Phe Gly Arg Met Val Gln Val His Glu Leu Gly Cys	
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Glu Gly Ile Ser Lys Ser Tyr Val Phe Arg Gly Thr Lys Asp Met Ser	
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Ala Lys Gln Leu Gln Glu Met Leu Gly Leu Ser Lys Val Pro Val Thr	
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Phe Leu Gln Pro Val Gln Lys Ile Asp Met Asn Leu Thr Asp Leu Leu	
229 234 239 244	
gga gaa ctc cag cga gac cct tgg cct gta cca cag gga aag aga cct	1001
Gly Glu Leu Gln Arg Asp Pro Trp Pro Val Pro Gln Gly Lys Arg Pro	
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Cys Thr Phe Pro Asn Thr Gly Ala Arg Ile Met Met Phe Ile Gly Gly	
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Pro Ala Thr Gln Gly Pro Gly Met Val Val Gly Asp Glu Leu Lys Thr	
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Thr Gly His Val Ile Asp Ile Tyr Ala Cys Ala Leu Asp Gln Thr Gly	
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Val Phe Thr Lys Asp Met His Gly Gln Phe Lys Met Gly Phe Gly Gly	
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Thr Leu Glu Ile Lys Thr Ser Arg Glu Ile Lys Ile Ser Gly Ala Ile	
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Gly Pro Cys Val Ser Leu Asn Ser Lys Gly Pro Cys Val Ser Glu Asn	
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Glu Ile Gly Thr Gly Gly Thr Cys Gln Trp Lys Ile Cys Gly Leu Ser	
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Pro Thr Thr Thr Leu Ala Ile Tyr Phe Glu Val Val Asn Gln His Asn	
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Tyr Gln His Ser Ser Gly Gln Arg Arg Ile Arg Val Thr Thr Ile Ala	
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Phe Asp Gln Glu Ala Ala Ala Ile Leu Met Ala Arg Leu Ala Ile Tyr	
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Arg Ala Glu Thr Glu Glu Gly Pro Asp Val Leu Arg Trp Leu Asp Arg	
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Gln Leu Ile Arg Leu Cys Gln Lys Phe Gly Glu Tyr His Lys Asp Asp	
549 554 559 564	
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Pro Ser Ser Phe Arg Phe Ser Glu Thr Phe Ser Leu Tyr Pro Gln Phe	
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Pro Asp Glu Ser Ser Tyr Tyr Arg His His Phe Met Arg Gln Asp Leu	
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Thr Gln Ser Leu Ile Met Ile Gln Pro Ile Leu Tyr Ala Tyr Ser Phe	
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cct att ctt aca gat gat gtt agt tta caa gtg ttt atg gat cac ttg				2489
Pro Ile Leu Thr Asp Asp Val Ser Leu Gln Val Phe Met Asp His Leu				
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Lys Lys Leu Ala Val Ser Ser Ala Ala *				
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                                   Met Leu Val Leu Val Val Ser
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ccg tgg tct gcg gcc cgg gga gtg ctt cga aac tac tgg gag cga ctg      160
Pro Trp Ser Ala Ala Arg Gly Val Leu Arg Asn Tyr Trp Glu Arg Leu
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cta cgg aag ctt ccg cag agc cgg ccg ggc ttt ccc agt cct ccg tgg      208
Leu Arg Lys Leu Pro Gln Ser Arg Pro Gly Phe Pro Ser Pro Pro Trp
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gga cca gca tta gca gta cag ggc cca gcc atg ttt aca gag cca gca      256
Gly Pro Ala Leu Ala Val Gln Gly Pro Ala Met Phe Thr Glu Pro Ala
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Asn Asp Thr Ser Gly Ser Lys Glu Asn Ser Ser Leu Leu Asp Ser Ile
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Cys Arg Arg Arg Asn Pro Gln Lys Leu Ile Lys Val Lys Asn Asn Ile
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gac gtt tgt cct gaa tgt ggt cac ctg aaa cag aaa cat gtc ctt tgt      448
Asp Val Cys Pro Glu Cys Gly His Leu Lys Gln Lys His Val Leu Cys
  104                               109                               114                               119

gcc tac tgc tat gaa aag gtg tgc aag gag act gca gaa atc aga cga      496
Ala Tyr Cys Tyr Glu Lys Val Cys Lys Glu Thr Ala Glu Ile Arg Arg
  120                               125                               130                               135

cag ata ggg aag caa gaa ggg ggc cct ttt aag gct ccc acc ata gag      544
Gln Ile Gly Lys Gln Glu Gly Gly Pro Phe Lys Ala Pro Thr Ile Glu
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act gtg gtg ctg tac acg gga gag aca ccg tct gaa caa gat cag ggc      592

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Asn *	
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Leu Cys Phe Gly Ser Gln Arg Ala Lys Ala Ala Thr Ala Cys Gly Arg	
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Gln Val Glu Ser Asn Pro Leu Tyr Gln Gly Thr Ala Ser Ser Ala Asp	
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Pro Glu Pro Arg Ile Leu Gln Lys Leu Ala Val Pro Ile Ile Asp Thr	
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Pro Lys Cys Thr Leu Leu Tyr Ser Lys Asp Thr Glu Phe Gly Tyr Gln	
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ccc aaa acc atc aag aat gac atg ctg tgc gcc ggc ttc gag gag ggc	794
Pro Lys Thr Ile Lys Asn Asp Met Leu Cys Ala Gly Phe Glu Glu Gly	
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237 242 247 252	
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Cys Ala Arg Gln Asn Arg Pro Gly Val Tyr Ile Arg Val Thr Ala His	
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His Asn Trp Ile His Arg Ile Ile Pro Lys Leu Gln Phe Gln Pro Ala	
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 Ala Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val  
   29                  34                  39                  44  
 ctg tac aag acc gaa ctg agc aag gag gag tgc tgc agc acc ggc cgg 492  
 Leu Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg  
   45                  50                  55                  60  
 ctg agc acc tcg tgg acc gag gag gac gtg aat gac aac aca ctc ttc 540  
 Leu Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe  
   61                  66                  71                  76  
 aag tgg atg att ttc aac ggg ggc gcc ccc aac tgc atc ccc tgt aaa 588  
 Lys Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys  
   77                  82                  87                  92  
 gaa acg tgt gag aac gtg gac tgt gga cct ggg aaa aaa tgc cga atg 636  
 Glu Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met  
   93                  98                  103                  108

aac aag aag aac aaa ccc cgc tgc gtc tgc gcc ccg gat tgt tcc aac	684
Asn Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn	
109 114 119 124	
atc acc tgg aag ggt cca gtc tgc ggg ctg gat ggg aaa acc tac cgc	732
Ile Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg	
125 130 135 140	
aat gaa tgt gca ctc cta aag gca aga tgt aaa gag cag cca gaa ctg	780
Asn Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu	
141 146 151 156	
gaa gtc cag tac caa ggc aga tgt aaa aag act tgt cgg gat gtt ttc	828
Glu Val Gln Tyr Gln Gly Arg Cys Lys Lys Thr Cys Arg Asp Val Phe	
157 162 167 172	
tgt cca ggc agc tcc aca tgt gtg gtg gac cag acc aat aat gcc tac	876
Cys Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr	
173 178 183 188	
tgt gtg acc tgt aat cgg att tgc cca gag cct gct tcc tct gag caa	924
Cys Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ala Ser Ser Glu Gln	
189 194 199 204	
tat ctc tgt ggg aat gat gga gtc acc tac tcc agt gcc tgc cac ctg	972
Tyr Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu	
205 210 215 220	
aga aag gct acc tgc ctg ctg ggc aga tct att gga tta gcc tat gag	1020
Arg Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu	
221 226 231 236	
gga aag tgt atc aaa gca aag tcc tgt gaa gat atc cag tgc act ggt	1068
Gly Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Thr Gly	
237 242 247 252	
ggg aaa aaa tgt tta tgg gat ttc aag gtt ggg aga ggc cgg tgt tcc	1116
Gly Lys Lys Cys Leu Trp Asp Phe Lys Val Gly Arg Gly Arg Cys Ser	
253 258 263 268	
ctc tgt gat gag ctg tgc cct gac agt aag tcg gat gag cct gtc tgt	1164
Leu Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys	
269 274 279 284	
gcc agt gac aat gcc act tat gcc agc gag tgt gcc atg aag gaa gct	1212
Ala Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala	
285 290 295 300	
gcc tgc tcc tca ggt gtg cta ctg gaa gta aag cac tcc gga tct tgc	1260
Ala Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys	
301 306 311 316	
aac tcc att tcg gaa gac acc gag gaa gag gag gaa gat gaa gac cag	1308
Asn Ser Ile Ser Glu Asp Thr Glu Glu Glu Glu Glu Asp Glu Asp Gln	
317 322 327 332	
gac tac agc ttt cct ata tct tct att cta gag tgg taa actctctata	1357

Asp Tyr Ser Phe Pro Ile Ser Ser Ile Leu Glu Trp \*  
 333 338 343

agtgttcagt gttgacatag cctttgtgca aaaaaaaaaa aa 1399

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (137) .. (628)

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cgcggtaggc tgccagccag gctgggaaag cgggtgtagc tggttgggtt gctggggctc 120

ggttgttgta gtcgcg atg ttc ttc tcc gag gcc aga gcc agg tcg cgg 169  
 Met Phe Phe Ser Glu Ala Arg Ala Arg Ser Arg  
 1 5

acg tgg gaa gcc agt ccc tcg gaa cac agg aag tgg gtg gaa gta ttt 217  
 Thr Trp Glu Ala Ser Pro Ser Glu His Arg Lys Trp Val Glu Val Phe  
 12 17 22 27

aaa gca tgt gat gaa gat cac aaa gga tat ctc agc aga gag gac ttt 265  
 Lys Ala Cys Asp Glu Asp His Lys Gly Tyr Leu Ser Arg Glu Asp Phe  
 28 33 38 43

aaa act gct gtt gta atg ctg ttt ggg tac aag ccc tcc aag ata gaa 313  
 Lys Thr Ala Val Val Met Leu Phe Gly Tyr Lys Pro Ser Lys Ile Glu  
 44 49 54 59

gtg gat tct gtg atg tct tca ata aat cca aat act tct ggt ata tta 361  
 Val Asp Ser Val Met Ser Ser Ile Asn Pro Asn Thr Ser Gly Ile Leu  
 60 65 70 75

ctc gag ggg ttt tta aat att gtc agg aaa aag aag gaa gct caa cga 409  
 Leu Glu Gly Phe Leu Asn Ile Val Arg Lys Lys Lys Glu Ala Gln Arg  
 76 81 86 91

tat cgg aac gaa gta aga cac atc ttc aca gcc ttt gac acc tac tat 457  
 Tyr Arg Asn Glu Val Arg His Ile Phe Thr Ala Phe Asp Thr Tyr Tyr  
 92 97 102 107

cgt gga ttt tta act ttg gaa gat ttc aaa aaa gca ttt agg cag gtg 505  
 Arg Gly Phe Leu Thr Leu Glu Asp Phe Lys Lys Ala Phe Arg Gln Val  
 108 113 118 123

gct ccc aaa tta ccg gaa agg act gtt ctt gag gta ttc agg gaa gta 553  
 Ala Pro Lys Leu Pro Glu Arg Thr Val Leu Glu Val Phe Arg Glu Val  
 124 129 134 139



gat cga gat tca gat ggt cac gtc agc ttt aga gac ttt gaa tat gcc 601  
 Asp Arg Asp Ser Asp Gly His Val Ser Phe Arg Asp Phe Glu Tyr Ala  
 140 145 150 155

ctg aac tat gga cag aag gaa gcc taa ctatt gtgaactact tttggtaact 653  
 Leu Asn Tyr Gly Gln Lys Glu Ala \*  
 156 161

ctggggagat caatagattg taatgtcagc agactctact ctactaatga tgtcatgcta 713

cagacttggtg attaaacatt taaaaatttt taaaaaaaaa aaaaaa 759

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<211> 2627

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (110)..(1363)

<400> 434

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ccgggttttc tgccccgttc ccccggggtgg ctgtgggctc ccgagcccc atg tcg 115  
 Met Ser  
 1

gcc agc cgg ccc cag ggc ccc acg acc cca tgg tgt ctc cca aga agg 163  
 Ala Ser Arg Pro Gln Gly Pro Thr Thr Pro Trp Cys Leu Pro Arg Arg  
 3 8 13 18

tac atg aag cac aag cgc gac gat ggg ccc gag aag cag gag gac gag 211  
 Tyr Met Lys His Lys Arg Asp Asp Gly Pro Glu Lys Gln Glu Asp Glu  
 19 24 29 34

gcg gtg gac gtg acg ccg gtg atg acc tgc gtg ttt gtg gtg atg tgc 259  
 Ala Val Asp Val Thr Pro Val Met Thr Cys Val Phe Val Val Met Cys  
 35 40 45 50

tgc tcc atg ctg gtg ctg ctc tac tat ttc tac gac ctc ctc gtg tac 307  
 Cys Ser Met Leu Val Leu Leu Tyr Tyr Phe Tyr Asp Leu Leu Val Tyr  
 51 56 61 66

gtg gtc atc ggg atc ttc tgc ctg gcc tcc gcc acc ggc ctc tac agc 355  
 Val Val Ile Gly Ile Phe Cys Leu Ala Ser Ala Thr Gly Leu Tyr Ser  
 67 72 77 82

tgc ctg gcg ccc tgt|gtg cgg cgg ctg cct tcg gca agt gca ggt gag 403  
 Cys Leu Ala Pro Cys Val Arg Arg Leu Pro Ser Ala Ser Ala Gly Glu  
 83 88 93 98

tct gcc ctg ctg gcc ccg acg atc ccc aac aac agc ctg ccc tac ttc 451

Ser	Ala	Leu	Leu	Ala	Pro	Thr	Ile	Pro	Asn	Asn	Ser	Leu	Pro	Tyr	Phe		
99					104					109					114		
cac	aag	cgc	ccg	cag	gcc	cgt	atg	ctg	ctc	ctg	gcg	ctc	ttc	tgc	gtg	499	
His	Lys	Arg	Pro	Gln	Ala	Arg	Met	Leu	Leu	Leu	Ala	Leu	Phe	Cys	Val		
115					120					125					130		
gcc	gtc	agc	gtg	gtg	tgg	ggc	gtc	ttc	cgc	aac	gag	gac	cag	tgg	gcc	547	
Ala	Val	Ser	Val	Val	Trp	Gly	Val	Phe	Arg	Asn	Glu	Asp	Gln	Trp	Ala		
131					136					141					146		
tgg	gtc	ctc	cag	gat	gcc	ctg	ggc	atc	gcc	ttc	tgc	ctc	tac	atg	ctg	595	
Trp	Val	Leu	Gln	Asp	Ala	Leu	Gly	Ile	Ala	Phe	Cys	Leu	Tyr	Met	Leu		
147					152					157					162		
aag	acc	atc	cgt	ctg	ccc	acc	ttc	aag	gcc	tgc	acg	ctg	ctg	ctg	ctg	643	
Lys	Thr	Ile	Arg	Leu	Pro	Thr	Phe	Lys	Ala	Cys	Thr	Leu	Leu	Leu	Leu		
163					168					173					178		
gtg	ctg	ttc	ctc	tac	gac	atc	ttc	ttc	gtg	ttc	atc	acg	ccc	ttc	ctg	691	
Val	Leu	Phe	Leu	Tyr	Asp	Ile	Phe	Phe	Val	Phe	Ile	Thr	Pro	Phe	Leu		
179					184					189					194		
acc	aag	agt	ggg	agc	agc	atc	atg	gtg	gag	gtg	gcc	act	ggg	ccc	tcg	739	
Thr	Lys	Ser	Gly	Ser	Ser	Ile	Met	Val	Glu	Val	Ala	Thr	Gly	Pro	Ser		
195					200					205					210		
gac	tca	gcc	acc	cgt	gag	aag	ctg	ccc	atg	gtc	ctg	aag	gtg	ccc	agg	787	
Asp	Ser	Ala	Thr	Arg	Glu	Lys	Leu	Pro	Met	Val	Leu	Lys	Val	Pro	Arg		
211					216					221					226		
ctg	aac	tcc	tca	cct	ctg	gcc	ctg	tgt	gac	cgg	ccc	ttc	tcc	ctc	ctg	835	
Leu	Asn	Ser	Ser	Pro	Leu	Ala	Leu	Cys	Asp	Arg	Pro	Phe	Ser	Leu	Leu		
227					232					237					242		
ggc	ttc	gga	gac	att	ttg	gtg	cca	ggg	ctg	ctg	gtg	gcc	tac	tgc	cac	883	
Gly	Phe	Gly	Asp	Ile	Leu	Val	Pro	Gly	Leu	Leu	Val	Ala	Tyr	Cys	His		
243					248					253					258		
agg	ttt	gac	atc	cag	gta	cag	tcc	tcc	agg	gta	tac	ttc	gtg	gcc	tgc	931	
Arg	Phe	Asp	Ile	Gln	Val	Gln	Ser	Ser	Arg	Val	Tyr	Phe	Val	Ala	Cys		
259					264					269					274		
acc	atc	gcc	tat	ggc	gtt	ggc	ctc	ctt	gtg	aca	ttc	gtg	gca	ctg	gcc	979	
Thr	Ile	Ala	Tyr	Gly	Val	Gly	Leu	Leu	Val	Thr	Phe	Val	Ala	Leu	Ala		
275					280					285					290		
ctg	atg	cag	cgt	ggc	cag	ccc	gct	ctc	ctc	tac	ctg	gtg	ccc	tgc	acg	1027	
Leu	Met	Gln	Arg	Gly	Gln	Pro	Ala	Leu	Leu	Tyr	Leu	Val	Pro	Cys	Thr		
291					296					301					306		
ctg	gtg	acg	agc	tgc	gct	gtg	gcg	ctc	tgg	cgc	cgg	gag	ctg	ggc	gtg	1075	
Leu	Val	Thr	Ser	Cys	Ala	Val	Ala	Leu	Trp	Arg	Arg	Glu	Leu	Gly	Val		
307					312					317					322		
ttc	tgg	acg	ggc	agc	ggc	ttt	gcg	aaa	gtc	cta	cct	cca	tct	ccg	tgg	1123	
Phe	Trp	Thr	Gly	Ser	Gly	Phe	Ala	Lys	Val	Leu	Pro	Pro	Ser	Pro	Trp		

323	328	333	338	
gcc cca gca cca gcc gac ggc ccg cag cct ccc aaa gac tct gcc acg				1171
Ala Pro Ala Pro Ala Asp Gly Pro Gln Pro Pro Lys Asp Ser Ala Thr				
339	344	349	354	
cca ctc tcc ccg cag ccg ccc agc gaa gaa cca gcc aca tcc ccc tgg				1219
Pro Leu Ser Pro Gln Pro Pro Ser Glu Glu Pro Ala Thr Ser Pro Trp				
355	360	365	370	
cct gct gag cag tcc cca aaa tca cgc acg tcc gag gag atg ggg gct				1267
Pro Ala Glu Gln Ser Pro Lys Ser Arg Thr Ser Glu Glu Met Gly Ala				
371	376	381	386	
gga gcc ccc atg cgg gag cct ggg agc cca gct gaa tcc gag ggc cgg				1315
Gly Ala Pro Met Arg Glu Pro Gly Ser Pro Ala Glu Ser Glu Gly Arg				
387	392	397	402	
gac cag gcc cag ccg tcc ccg gta acc cag cct ggc gcc tcg gcc tag				1363
Asp Gln Ala Gln Pro Ser Pro Val Thr Gln Pro Gly Ala Ser Ala *				
403	408	413	418	
gggaggggtg agacgctcgc tgccgtgccc gccacaccaa gatgttgggg ctgcctggcg				1423
cccactggag acagacagac agacgcctgt ccccggggac cgaggcctgt gccgtcccca				1483
cccgcccca catggtgctc atccttgccg agaccctgc agtcctgcc cgcgccagc				1543
ccagctgccc cggctgcacg cctgctgctc ccagctgcc cggctgccac aagctctctg				1603
cgggtccatc ctccccaccg ggggtccgtcc tcgcaggccc tgcccggcct ctctgcagac				1663
cctcaagcgt cgtctgcatg agtgagcagg cgtgggtgga ctctggccgc ggccacactt				1723
ggtgctcacc agctgcttcg gccttcaggt gacctccctc cccacggcat cctgctctcc				1783
gggtggaaga gcagctttct gtctcccaga aggcctcgt tttccctctt gacgagatcg				1843
gagccctgg gaggtttgga agctgcctcc aagcctagga cacggaccgg tggccggggc				1903
ggcctctggc ccctgacgct ggctgagaca ggcccgtggg gcgggggtttt ggggcgtgaa				1963
caaggctggc agtaagtgga caagctgctc ccctggctaa ggccctgccc tgccctcagc				2023
cagaggtgcc tggccatgcc tgcacactcc tccccatttt aataaatggt cgcaacttct				2083
agaagtctg ctggtgccac ctggtggggg ggacgtctct cagactgccc ttctgacaag				2143
caggggtggg cgccaggcag gctgggtcag gccctcaggg gtccctggag ccctgggagg				2203
gagggactgg gtcgtgggag gtcctggtag ctcccgccac ccaacctcgc ttcccgctg				2263
ggccccgtgt tgcttttctg ctgagagggg cttgggcctc ggttctccct gtggcagcgg				2323
cattggtgcc tgggttctta accctctgga cccagcagct aggagcttct ggaaccacg				2383
aggacatctg ccaactggcat ggtctactca ctgatggggg cctcctgact ccagggcaga				2443

gacgtccgtg cgggaactga ccgaggcgtg gccccaggcc ccggcatcct cccctcgctg 2503  
cacgtgggtca cttccgaagc agcgctccct gtggccgcag agacagagcc cgcaccctgg 2563  
ctgtctgtgg tgctggggcc ccagctcccg cccgccaccc gccctgttga gtgcggcctc 2623  
caga 2627

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<212> DNA  
<213> Homo sapiens

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taaacccttg gaccccttg ttccctcagc tctaagggcc gcg atg ttg tac cta 175  
Met Leu Tyr Leu  
1  
gaa gac tat ctg gaa atg att gag cag ctt cct atg gat ctg cgg gac 223  
Glu Asp Tyr Leu Glu Met Ile Glu Gln Leu Pro Met Asp Leu Arg Asp  
5 10 15 20  
cgc ttc acg gaa atg cgc gag atg gac ctg cag gtg cag aat gca atg 271  
Arg Phe Thr Glu Met Arg Glu Met Asp Leu Gln Val Gln Asn Ala Met  
21 26 31 36  
gat caa cta gaa caa aga gtc agt gaa ttc ttt atg aat gca aag aaa 319  
Asp Gln Leu Glu Gln Arg Val Ser Glu Phe Phe Met Asn Ala Lys Lys  
37 42 47 52  
aat aaa cct gag tgg agg gaa gag caa atg gca tcc atc aaa aaa gac 367  
Asn Lys Pro Glu Trp Arg Glu Glu Gln Met Ala Ser Ile Lys Lys Asp  
53 58 63 68  
tac tat aaa gct ttg gaa gat gca gat gag aag gtt cag ttg gca aac 415  
Tyr Tyr Lys Ala Leu Glu Asp Ala Asp Glu Lys Val Gln Leu Ala Asn  
69 74 79 84  
cag ata tat gac ttg gta gat cga cac ttg aga aag ctg gat cag gaa 463  
Gln Ile Tyr Asp Leu Val Asp Arg His Leu Arg Lys Leu Asp Gln Glu  
85 90 95 100  
ctg gct aag ttt aaa atg gag ctg gaa gct gat aat gct gga att aca 511  
Leu Ala Lys Phe Lys Met Glu Leu Glu Ala Asp Asn Ala Gly Ile Thr  
101 106 111 116



gta gtg cca gaa tct gat tca aat agt cag gtt gat tgg act tac gac	1231
Val Val Pro Glu Ser Asp Ser Asn Ser Gln Val Asp Trp Thr Tyr Asp	
341 346 351 356	
cca aat gaa cct cga tac tgc att tgt aat cag gta tct tat ggt gag	1279
Pro Asn Glu Pro Arg Tyr Cys Ile Cys Asn Gln Val Ser Tyr Gly Glu	
357 362 367 372	
atg gtg gga tgt gat aac caa gat tgc cct ata gaa tgg ttc cat tat	1327
Met Val Gly Cys Asp Asn Gln Asp Cys Pro Ile Glu Trp Phe His Tyr	
373 378 383 388	
ggc tgc gtt gga ttg aca gag gca cca aaa ggc aaa tgg tac tgt cca	1375
Gly Cys Val Gly Leu Thr Glu Ala Pro Lys Gly Lys <sup>45</sup> Trp Tyr Cys Pro	
389 394 399 404	
cag tgc act gct gca atg aag aga aga ggc agc aga cac aaa taa agg	1423
Gln Cys Thr Ala Ala Met Lys Arg Arg Gly Ser Arg His Lys *	
405 410 415	
tggtcctttt gtttgatgaa gaaataaact tcagctgaag attttatata ggactttaaa	1483
aagaagagaa gagaaagaag aaacaatgca tttccaggca accacttaaa ggattttacat	1543
agacaatcct ataagatcct gaacttgaat tttatgggtt gtatttttaat aatgtaagta	1603
aattatttat gcaactcctgg tgtgctatga atattattcc agttagcctt ggattatttc	1663
agtggccaac atatgcagac atttgtactc ctcaaccatt ttctcaaagt aatgggcatt	1723
ctatgattta gacttcaagg aattccaatg atgaagattt taaggaaagt attttatatt	1783
caacagggtat attctgctgc atgtactgta ctccagagct gttatgtaac actgtatata	1843
aatggttgca aaaaaaaaaa a	1864

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 <212> DNA  
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aaaaagagat ctctcgagga tccgaattcg cggccgcgtc gacgtccggg ttcgcttgcc	120
tcgtcagcgt ccgcgttttt cccggccccc cccaaccccc ccggacagga ccccttgag	180
cttgtccctc agctgccacc atg agc gac caa gat cac tcc atg gat gaa	230
Met Ser Asp Gln Asp His Ser Met Asp Glu	

1

5

atg aca gct gtg gtg aaa att gaa aaa gga gtt ggt ggc aat aat ggg	278
Met Thr Ala Val Val Lys Ile Glu Lys Gly Val Gly Gly Asn Asn Gly	
11 16 21 26	
ggc aat ggt aat ggt ggt ggt gcc ttt tca cag gct cga agt agc agc	326
Gly Asn Gly Asn Gly Gly Gly Ala Phe Ser Gln Ala Arg Ser Ser Ser	
27 32 37 42	
aca ggc agt agc agc agc act gga gga gga ggg cag gag tcc cag cca	374
Thr Gly Ser Ser Ser Ser Thr Gly Gly Gly Gly Gln Glu Ser Gln Pro	
43 48 53 58	
tcc cct ttg gct ctg ctg gca gca act tgc agc aga att gag tca ccc	422
Ser Pro Leu Ala Leu Leu Ala Ala Thr Cys Ser Arg Ile Glu Ser Pro	
59 64 69 74	
aat gag aac agc aac aac tcc cag ggc ccg agt cag tca ggg gga aca	470
Asn Glu Asn Ser Asn Asn Ser Gln Gly Pro Ser Gln Ser Gly Gly Thr	
75 80 85 90	
ggt gag ctt gac ctc aca gcc aca caa ctt tca cag ggt gcc aat ggc	518
Gly Glu Leu Asp Leu Thr Ala Thr Gln Leu Ser Gln Gly Ala Asn Gly	
91 96 101 106	
tgg cag atc atc tct tcc tcc tct ggg gct acc cct acc tca aag gaa	566
Trp Gln Ile Ile Ser Ser Ser Ser Gly Ala Thr Pro Thr Ser Lys Glu	
107 112 117 122	
cag agt ggc agc agt acc aat ggc agc aat ggc agt gag tct tcc aag	614
Gln Ser Gly Ser Ser Thr Asn Gly Ser Asn Gly Ser Glu Ser Ser Lys	
123 128 133 138	
aat cgc aca gtc tct ggt ggg cag tat gtt gtg gct gcc gct ccc aac	662
Asn Arg Thr Val Ser Gly Gly Gln Tyr Val Val Ala Ala Ala Pro Asn	
139 144 149 154	
tta cag aac cag caa gtt ctg aca gga cta cct gga gtg atg cct aat	710
Leu Gln Asn Gln Gln Val Leu Thr Gly Leu Pro Gly Val Met Pro Asn	
155 160 165 170	
att cag tat caa gta atc cca cag ttc cag acc gtt gat ggg caa cag	758
Ile Gln Tyr Gln Val Ile Pro Gln Phe Gln Thr Val Asp Gly Gln Gln	
171 176 181 186	
ctg cag ttt gct gcc act ggg gcc caa gtg cag cag gat ggt tct ggt	806
Leu Gln Phe Ala Ala Thr Gly Ala Gln Val Gln Gln Asp Gly Ser Gly	
187 192 197 202	
caa ata cag atc ata cca ggt gca aac caa cag att atc aca aat cga	854
Gln Ile Gln Ile Ile Pro Gly Ala Asn Gln Gln Ile Ile Thr Asn Arg	
203 208 213 218	
gga agt gga ggc aac atc att gct gct atg cca aac cta ctc cag cag	902
Gly Ser Gly Gly Asn Ile Ile Ala Ala Met Pro Asn Leu Leu Gln Gln	
219 224 229 234	

gct gtc ccc ctc caa ggc ctg gct aat aat gta ctc tca gga cag act	950
Ala Val Pro Leu Gln Gly Leu Ala Asn Asn Val Leu Ser Gly Gln Thr	
235 240 245 250	
cag tat gtg acc aat gta cca gtg gcc ctg aat ggg aac atc acc ttg	998
Gln Tyr Val Thr Asn Val Pro Val Ala Leu Asn Gly Asn Ile Thr Leu	
251 256 261 266	
cta cct gtc aac agc gtt tct gca gct acc ttg act ccc agc tct cag	1046
Leu Pro Val Asn Ser Val Ser Ala Ala Thr Leu Thr Pro Ser Ser Gln	
267 272 277 282	
gca gtc acg atc agc agc tct ggg tcc cag gag agt ggc tca cag cct	1094
Ala Val Thr Ile Ser Ser Ser Gly Ser Gln Glu Ser Gly Ser Gln Pro	
283 288 293 298	
gtc acc tca ggg act acc atc agt tct gcc agc ttg gta tca tca caa	1142
Val Thr Ser Gly Thr Thr Ile Ser Ser Ala Ser Leu Val Ser Ser Gln	
299 304 309 314	
gcc agt tcc agc tcc ttt ttc acc aat gcc aat agc tac tca act act	1190
Ala Ser Ser Ser Ser Phe Phe Thr Asn Ala Asn Ser Tyr Ser Thr Thr	
315 320 325 330	
act acc acc agc aac atg gga att atg aac ttt act acc agt gga tca	1238
Thr Thr Thr Ser Asn Met Gly Ile Met Asn Phe Thr Thr Ser Gly Ser	
331 336 341 346	
tca ggg acc aac tct caa ggc cag aca ccc cag agg gtc agt ggg cta	1286
Ser Gly Thr Asn Ser Gln Gly Gln Thr Pro Gln Arg Val Ser Gly Leu	
347 352 357 362	
cag ggg tct gat gct ctg aac atc cag caa aac cag aca tct gga ggc	1334
Gln Gly Ser Asp Ala Leu Asn Ile Gln Gln Asn Gln Thr Ser Gly Gly	
363 368 373 378	
tca ttg caa gca ggc cag cag aaa gaa gga gag caa aac cag cag aca	1382
Ser Leu Gln Ala Gly Gln Gln Lys Glu Gly Glu Gln Asn Gln Gln Thr	
379 384 389 394	
cag cag caa caa att ctt atc cag cct cag cta gtt caa ggg gga cag	1430
Gln Gln Gln Gln Ile Leu Ile Gln Pro Gln Leu Val Gln Gly Gly Gln	
395 400 405 410	
gcc ctc cag gcc ctc caa gca gca cca ttg tca ggg cag acc ttt aca	1478
Ala Leu Gln Ala Leu Gln Ala Ala Pro Leu Ser Gly Gln Thr Phe Thr	
411 416 421 426	
act caa gcc atc tcc cag gaa acc ctc cag aac ctc cag ctt cag gct	1526
Thr Gln Ala Ile Ser Gln Glu Thr Leu Gln Asn Leu Gln Leu Gln Ala	
427 432 437 442	
gtt cca aac tct ggt ccc atc atc atc cgg aca cca aca gtg ggg ccc	1574
Val Pro Asn Ser Gly Pro Ile Ile Ile Arg Thr Pro Thr Val Gly Pro	
443 448 453 458	



aat gga cag gtc agt tgg cag act cta cag ctg cag aac ctc caa gtt	1622
Asn Gly Gln Val Ser Trp Gln Thr Leu Gln Leu Gln Asn Leu Gln Val	
459 464 469 474	
cag aac cca caa gcc caa aca atc acc tta gcc cca atg cag ggt gtt	1670
Gln Asn Pro Gln Ala Gln Thr Ile Thr Leu Ala Pro Met Gln Gly Val	
475 480 485 490	
tcc ttg ggg cag acc agc agc agc aac acc act ctc aca ccc att gcc	1718
Ser Leu Gly Gln Thr Ser Ser Ser Asn Thr Thr Leu Thr Pro Ile Ala	
491 496 501 506	
tca gct gct tcc att cct gct ggc aca gtc act gtg aat gct gct caa	1766
Ser Ala Ala Ser Ile Pro Ala Gly Thr Val Thr Val Asn Ala Ala Gln	
507 512 517 522	
ctc tcc tcc atg cca ggc ctc cag acc att aac ctc agt gca ttg ggt	1814
Leu Ser Ser Met Pro Gly Leu Gln Thr Ile Asn Leu Ser Ala Leu Gly	
523 528 533 538	
act tca gga atc cag gtg cac cca att caa ggc ctg ccg ttg gct ata	1862
Thr Ser Gly Ile Gln Val His Pro Ile Gln Gly Leu Pro Leu Ala Ile	
539 544 549 554	
gca aat gcc cca ggt gat cat gga gct cag ctt ggt ctc cat ggg gct	1910
Ala Asn Ala Pro Gly Asp His Gly Ala Gln Leu Gly Leu His Gly Ala	
555 560 565 570	
ggg ggt gat gga ata cat gat gac aca gca ggt gga gag gaa gga gaa	1958
Gly Gly Asp Gly Ile His Asp Asp Thr Ala Gly Gly Glu Glu Gly Glu	
571 576 581 586	
aac agc cca gat gcc caa ccc caa gcc ggt cgg agg acc cgg cgg gaa	2006
Asn Ser Pro Asp Ala Gln Pro Gln Ala Gly Arg Arg Thr Arg Arg Glu	
587 592 597 602	
gca tgc acc tgc ccc tac tgt aaa gac agt gaa gga agg ggc tcg ggg	2054
Ala Cys Thr Cys Pro Tyr Cys Lys Asp Ser Glu Gly Arg Gly Ser Gly	
603 608 613 618	
gat cct ggc aaa aag aaa cag cat att tgc cac atc caa ggc tgt ggg	2102
Asp Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly Cys Gly	
619 624 629 634	
aaa gtg tat ggc aag acc tct cac ctg cgg gca cac ttg cgc tgg cat	2150
Lys Val Tyr Gly Lys Thr Ser His Leu Arg Ala His Leu Arg Trp His	
635 640 645 650	
aca ggc gag agg cca ttt atg tgt acc tgg tca tac tgt ggg aaa cgc	2198
Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly Lys Arg	
651 656 661 666	
ttc aca cgt tcg gat gag cta cag agg cac aaa cgt aca cac aca ggt	2246
Phe Thr Arg Ser Asp Glu Leu Gln Arg His Lys Arg Thr His Thr Gly	
667 672 677 682	
gag aag aaa ttt gcc tgc cct gag tgt cct aag cgc ttc atg agg agt	2294

Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met Arg Ser	
683 688 693 698	
gac cac ctg tca aaa cat atc aag acc cac cag aat aag aag gga ggc	2342
Asp His Leu Ser Lys His Ile Lys Thr His Gln Asn Lys Lys Gly Gly	
699 704 709 714	
cca ggt gta gct ctg agt gtg ggc act ttg ccc ctg gac agt ggg gca	2390
Pro Gly Val Ala Leu Ser Val Gly Thr Leu Pro Leu Asp Ser Gly Ala	
715 720 725 730	
ggt tca gaa ggc agt ggc act gcc act cct tca gcc ctt att acc acc	2438
Gly Ser Glu Gly Ser Gly Thr Ala Thr Pro Ser Ala Leu Ile Thr Thr	
731 736 741 746	
aat atg gta gcc atg gag gcc atc tgt cca gag ggc att gcc cgt ctt	2486
Asn Met Val Ala Met Glu Ala Ile Cys Pro Glu Gly Ile Ala Arg Leu	
747 752 757 762	
gcc aac agt ggc atc aac gtc atg cag gtg gca gat ctg cag tcc att	2534
Ala Asn Ser Gly Ile Asn Val Met Gln Val Ala Asp Leu Gln Ser Ile	
763 768 773 778	
aat atc agt ggc aat ggc ttc tga gatcaggcac ccggggccag agacatatgg	2588
Asn Ile Ser Gly Asn Gly Phe *	
779 784	
gccatacccc ttaaccccg gatgcaaggt agcatgggtc caagagacat ggaagagaga	2648
gccatgaagc attaaaatgc atggtgttga gaagaatcag gagagggata caagagagga	2708
gatgggggtcc cggcacccat ctgtatcatc agtgcctctt tgaaggtggg aaacattagt	2768
gaaaattctg ttggtgccac gctttgatga gcatttgttt gaccccagtt tcttcttaca	2828
cttcttacct cagcctacct ttcttgcatc tctcttctca gctcttccat gatggattcc	2888
ccccctttc ctaaagccat catgccttga taaatatata tgatcattga aatacttttt	2948
aacaaaaaac agattctata ttattatata tatatatata tatatatata gatatataga	3008
gatgcattca caggggttgg ctgggaggag gaagaccatt ctgtgaccaa aataccttgg	3068
tcattttttt tatattgctt tatttcctta tggctgagcc ttgttgtgac acatcaagct	3128
tttctgtaga tgttgtcttg gcttcccacc agcttaagcg ttcatatgct ctgcttttag	3188
ttcatatata catacataat gtttttctt tottaatttt gtctttttgt ttgggatcag	3248
cttcttgcac tcttcccta actcaactcg gcgcaagctt a	3289

<210> 437  
 <211> 1650  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (45)..(857)

<400> 437

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Met Ala Pro Trp  
1

ggc aag cgg ctg gct ggc gtg cgc ggg gtg ctg ctt gac atc tcg ggc 104  
Gly Lys Arg Leu Ala Gly Val Arg Gly Val Leu Leu Asp Ile Ser Gly  
5 10 15 20

gtg ctg tac gac agc ggc gcg ggc ggc ggc acg gcc atc gcc ggc tcg 152  
Val Leu Tyr Asp Ser Gly Ala Gly Gly Gly Thr Ala Ile Ala Gly Ser  
21 26 31 36

gtg gag gcg gtg gcc aga ctg aag cgt tcc cgg ctg aag gtg agg ttc 200  
Val Glu Ala Val Ala Arg Leu Lys Arg Ser Arg Leu Lys Val Arg Phe  
37 42 47 52

tgc acc aac gag tcg cag aag tcc cgg gca gag ctg gtg ggg cag ctt 248  
Cys Thr Asn Glu Ser Gln Lys Ser Arg Ala Glu Leu Val Gly Gln Leu  
53 58 63 68

cag agg ctg gga ttt gac atc tct gag cag gag gtg acc gcc ccg gca 296  
Gln Arg Leu Gly Phe Asp Ile Ser Glu Gln Glu Val Thr Ala Pro Ala  
69 74 79 84

cca gct gcc tgc cag atc ctg aag gag cga ggc ctg cga cca tac ctg 344  
Pro Ala Ala Cys Gln Ile Leu Lys Glu Arg Gly Leu Arg Pro Tyr Leu  
85 90 95 100

ctc atc cat gac gga gtc cgc tca gaa ttt gat cag atc gac aca tcc 392  
Leu Ile His Asp Gly Val Arg Ser Glu Phe Asp Gln Ile Asp Thr Ser  
101 106 111 116

aac cca aac tgt gtg gta att gca gac gca gga gaa agc ttt tct tat 440  
Asn Pro Asn Cys Val Val Ile Ala Asp Ala Gly Glu Ser Phe Ser Tyr  
117 122 127 132

caa aac atg aat aac gcc ttc cag gtg ctc atg gag ctg gaa aaa cct 488  
Gln Asn Met Asn Asn Ala Phe Gln Val Leu Met Glu Leu Glu Lys Pro  
133 138 143 148

gtg ctc ata tca ctg gga aaa ggg cgt tac tac aag gag acc tct ggc 536  
Val Leu Ile Ser Leu Gly Lys Gly Arg Tyr Tyr Lys Glu Thr Ser Gly  
149 154 159 164

ctg atg ctg gac gtt ggt ccc tac atg aag gcg ctt gag tat gcc tgt 584  
Leu Met Leu Asp Val Gly Pro Tyr Met Lys Ala Leu Glu Tyr Ala Cys  
165 170 175 180

ggc atc aaa gcc gag gtg ggg ggg aag cct tct cct gag ttt ttc aag 632  
Gly Ile Lys Ala Glu Val Gly Gly Lys Pro Ser Pro Glu Phe Phe Lys

181	186	191	196	
tct gcc ctg caa gcg ata gga gtg gaa gcc cac cag gcc gtc atg att				680
Ser Ala Leu Gln Ala Ile Gly Val Glu Ala His Gln Ala Val Met Ile				
197	202	207	212	
ggg gac gat atc gtg ggc gac gtc ggc ggt gcc cag cgg tgt gga atg				728
Gly Asp Asp Ile Val Gly Asp Val Gly Gly Ala Gln Arg Cys Gly Met				
213	218	223	228	
aga gcg ctg cag gtg cgc acc ggg aag ttc agg ccc agt gac gag cac				776
Arg Ala Leu Gln Val Arg Thr Gly Lys Phe Arg Pro Ser Asp Glu His				
229	234	239	244	
cat ccg gaa gtg aag gct gat ggg tac gtg gac aac ctc gca gag gca				824
His Pro Glu Val Lys Ala Asp Gly Tyr Val Asp Asn Leu Ala Glu Ala				
245	250	255	260	
gtg gac ctg ctg ctg cag cac gcc gac aag tga tggcctcc tgggagagcc				875
Val Asp Leu Leu Leu Gln His Ala Asp Lys *				
261	266	271		
ccgcctcctc caccctgcc tctcctccac cctgcctcc cctccacccc tgctctcct				935
ccaccgccc aggagagccc cacctcctcc acccctgct ctctccacc cctgcctccc				995
ctccacctgc ccagtgccc agaccaccca aggcctgac agcctgcct tctgcctct				1055
gccctgcatg ggcaggcatt tgttccctac ctgggtggcc tgctccctg cctgggccct				1115
gacttcagct ccctgtagt aagtccagga ggggtggaca ggctgtcag gcctctggga				1175
atctccaaa tcccagaact caccactcac catgggcctt taaatgcagt aaactccacc				1235
taaccagatt caggggact atgccactg cctcctcttc agactctttg catttcagt				1295
aagagcctgg aagaaaccca ggggcctcct atgcacagat cttgcagccc agaaccaagt				1355
cagcctcct gcgactgcc aggcacactg ccaccaccc caccgccgaa acaatgccag				1415
ccgctgctt tttctatcct ccagtcacc ttgagaca aagaccagg gcagctccc				1475
agggcactgt gaaggctccc atgccacaca gtgagaactg tagcctctgc gtccaaggca				1535
cacagggtag tttctggacc cactgctgga cagacttgaa ggtgtcatgc ccggtgtgtg				1595
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<210> 438

<211> 603

<212> DNA

<213> Homo sapiens

<220>

<221> CDS  
 <222> (251) .. (469)

<400> 438

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ccgggaggtg gaggtttag tagagctgaga ttgtgccact gcactctagc ctggttgaca	120
gagtgagact ccctctcaaa aaataaaaaat aaaatataaa taaataaaac aattggggcc	180
tcactatattt atatttttgt ctcaaaaaaac aactctctct tgtggtgtgt gcttgattct	240
gcttcttgtc atg tct tct cac aag tct ttt aag agt aag cga ttc ctg	289
Met Ser Ser His Lys Ser Phe Lys Ser Lys Arg Phe Leu	
1 5 10	
gcc aag aaa caa aag cca aat cgt ccc att ctc cag tgg atc tgg ttg	337
Ala Lys Lys Gln Lys Pro Asn Arg Pro Ile Leu Gln Trp Ile Trp Leu	
14 19 24 29	
aaa act ggt aat aaa atc agg cac aac tgg aaa gga gac att gca gaa	385
Lys Thr Gly Asn Lys Ile Arg His Asn Trp Lys Gly Asp Ile Ala Glu	
30 35 40 45	
cag cca agc tgg gtc tat aag gaa ctg cac gtg agc tgg cac aca tat	433
Gln Pro Ser Trp Val Tyr Lys Glu Leu His Val Ser Trp His Thr Tyr	
46 51 56 61	
tca cgc tgt atc aag gtc acg gcc atc tta cta tag caag ctgaaaacgt	483
Ser Arg Cys Ile Lys Val Thr Ala Ile Leu Leu *	
62 67 72	
caccactgtc tgaacagttg gacgtgtttt attgggaata tattttttct ctttgcttat	543
atgccctgcg atagtaggct gggttcagta ataaatatgt gagacctttt gtttcaggaa	603

<210> 439  
 <211> 1816  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (178) .. (729)

<400> 439

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gcttgcgggg tgaacctgca gggagcctgg ggagagcggc caggggtcag agcgtccgag	120
gcggaatccc cggggaaaacg cgcagatgta agctgggtgga gccgccagct ggagacg	177
atg gtg gac cac ttg gcc aac acg gag atc aac agc cag cgc atc gcg	225
Met Val Asp His Leu Ala Asn Thr Glu Ile Asn Ser Gln Arg Ile Ala	
1 5 10 15	

gca gtg gag agc tgc ttc ggg gcc tcg ggg cag ccg ctg gcg ctg cca	273
Ala Val Glu Ser Cys Phe Gly Ala Ser Gly Gln Pro Leu Ala Leu Pro	
17 22 27 32	
ggc cga gtg ctg ctg ggc gag ggc gtg ctg acc aaa gag tgc cgc aag	321
Gly Arg Val Leu Leu Gly Glu Gly Val Leu Thr Lys Glu Cys Arg Lys	
33 38 43 48	
aag gcc aag ccg cgc atc ttc ttc ctc ttt aac gac atc ctg gtg tat	369
Lys Ala Lys Pro Arg Ile Phe Phe Leu Phe Asn Asp Ile Leu Val Tyr	
49 54 59 64	
ggc agc atc gtg ctc aac aag cgc aag tac cgc agc <sup>i</sup> cag cac atc atc	417
Gly Ser Ile Val Leu Asn Lys Arg Lys Tyr Arg Ser Gln His Ile Ile	
65 70 75 80	
ccc ctg gag gag gtc aca ctg gag ctg ttg ccg gag acg ctg cag gcc	465
Pro Leu Glu Glu Val Thr Leu Glu Leu Leu Pro Glu Thr Leu Gln Ala	
81 86 91 96	
aag aac cgc tgg atg atc aag acg gcc aag aag tcc ttt gtg gtg tcg	513
Lys Asn Arg Trp Met Ile Lys Thr Ala Lys Lys Ser Phe Val Val Ser	
97 102 107 112	
gcc gcc tcc gct acg gag cgc cag gaa tgg att agc cac atc gag gag	561
Ala Ala Ser Ala Thr Glu Arg Gln Glu Trp Ile Ser His Ile Glu Glu	
113 118 123 128	
tgc gtg cgg cgg caa ctg agg gcc acg ggc cgc ccg ccc agc acg gag	609
Cys Val Arg Arg Gln Leu Arg Ala Thr Gly Arg Pro Pro Ser Thr Glu	
129 134 139 144	
cac gcg gca ccc tgg atc ccc gac aag gcc acg gac atc tgc atg cgc	657
His Ala Ala Pro Trp Ile Pro Asp Lys Ala Thr Asp Ile Cys Met Arg	
145 150 155 160	
tgc acg cag acg cgc ttc tct gcc ctc acg agg cgc cac cac tgc cgc	705
Cys Thr Gln Thr Arg Phe Ser Ala Leu Thr Arg Arg His His Cys Arg	
161 166 171 176	
aag tgc gtt cgt ggt ctg cgc tga gtgctcgcgc cagcgttcc tgctcccgcg	759
Lys Cys Val Arg Gly Leu Arg *	
177 182	
cctgtccccc aagcccgtgc gcgtctgcag cctctgctac cgcgaaactgg ccgcccagca	819
gcggcaggag gaggcggagg agcagggcgc ggggtcccca gggcagccag cccacctggc	879
ccggcccatc tgcggacgtc cagtggagat gacgatgact ccgacgagga caaggagggc	939
agcagggacg gcgactggcc cagcagcgtg gagttctacg cctcgggggt ggccctggtct	999
gccttcaca gctgaccccc ggccctgcaga acatctgtcc ccaagccagc <sup>1</sup> tccactgccc	1059
aggcccccaa gagggcagct ccagaagctg ccaggggtc cgggacccca tcccatggtg	1119

gcaggtgcag cgggtggggag tggctctttc tggactccca gtgccttttt gctggacact 1179  
 gtgtccttat ggcttcactg caggtaatgc ctttcccttc aggaagcccc agaacaccca 1239  
 caggtcttgg taacaaacgc caccttacac tctgcaggct gcagcggcag ctccagatgg 1299  
 cctcctgagc tggacgaccc caggtctcca gacatctagg gaccagagca ggtttgggaa 1359  
 cacagagggg agacaggatg ggagtgtagc cacagaaccc acctgcaccc tgacaggcac 1419  
 accccactga agagcctgag tcccaggagg cctcctggaa gcccaggact gccacccac 1479  
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 aagcccagcc agagactgcc gtgctgtggg tgccaccagg cccagggact gcagcctgag 1599  
 ctccccgagg cccagggcag ccgggtgagg actctgtcct gtgtcacctc tctccaggtg 1659  
 tccagctgtc tcatgccttt ttgtcctgtc ctcagctctc cgtgtgggtca gcgaaaccat 1719  
 tgttttctgt taggactcag ttgcaagaac agaaaccctg cccccactta ataataaaaa 1779  
 agaaagttaa ttgatgggtg gttgcaaaaa aaaaaaa 1816

<210> 440  
 <211> 833  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (258)..(467)

<220>  
 <221> misc\_feature  
 <222> (1)...(833)  
 <223> n = a,t,c or g

<400> 440  
 cgtgccagct ctactgaac atgaaagcag tcgnaaccca gaaaagtaag aaagttcaac 60  
 gcaccttggg ccgcctgagt cgacgcccgc gctcctgcgt attgctcctt tnccacagtg 120  
 gactctgtgg tcgccacatc cttctcctgc atgtggcaag ccaccgggac atgggctgct 180  
 gaccgctctc gctggccttc gtgggtgcct cccactagcc taccagcaga cctcggcctt 240  
 cgcccggcag ccccgcg atg agc tgg agc gcg tgc gtg tca gct gca cca 290  
 Met Ser Trp Ser Ala Cys Val Ser Ala Ala Pro  
 1 5  
 tca tct tcc tgg ccà gca tct tcc agc tgg cca tgt gga cca cgg cgc 338  
 Ser Ser Ser Trp Pro Ala Ser Ser Ser Trp Pro Cys Gly Pro Arg Arg  
 12 17 22 27

tgc tgc acc agg cgg aga cgc tgc agc cct cgg tgt ggt ttg gcg gcc	386
Cys Cys Thr Arg Arg Arg Arg Cys Ser Pro Arg Cys Gly Leu Ala Ala	
28 33 38 43	
ggg agc atg tgc tca tgt tcg cca agc tgg cgc tgt acc cct gtg cca	434
Gly Ser Met Cys Ser Cys Ser Pro Ser Trp Arg Cys Thr Pro Val Pro	
44 49 54 59	
gcc tgc tgg cct tcg cct cca cct gcc tgc tga gcagggttc agtgtgggca	485
Ala Cys Trp Pro Ser Pro Pro Pro Ala Cys *	
60 65 70	
tcttccacct catgcagatc gccgtgccct gcgccttcct gttgctgcgc ctgctcgtgg	545
gcctggccct ggccaccctg cgggtcctgc ggggcctcgc ccggcccgaa cccccccgc	605
cagccccac gggccaggac gaccacagt ccagctcct cctgcccc tgctagcagc	665
cacagagccc actcccagcc gtcctcacca gagatggacc agggaggaca ggatgctggg	725
caggggaagc caagtcacgg gcaggccgca gtggttcttg cgtggcctgg ttttattttc	785
attgtgaaat atcatgctct tatttcagtc ctcaaaaaaa aaaaaaaa	833

<210> 441  
 <211> 1241  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (350)..(553)

<220>  
 <221> misc\_feature  
 <222> (1)..(1241)  
 <223> n = a,t,c or g

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gtgagagcag gtcagaggcc gggcccagcg ccagcgaggc atctggggag ccgtgccctt	180
gttagcgctg aaaatggaag cccctccatt caggcctgga cagatgatgg gcagcgaatg	240
tgctcacatg ctgagctgtg gggctggact aggtaccaa atcagggtag aacactgaga	300
cgtctgtggg cgggtgtgtg cacatccaca cttgtacact cacattcac	355
atg cac	
Met His	



ata tgt gca cac gca tgc aat tca tac aca tgc aca gtt gtg ctc aca	403
Ile Cys Ala His Ala Cys Asn Ser Tyr Thr Cys Thr Val Val Leu Thr	
3 8 13 18	
gcc tcg cac gcc ctt gca cac tcg cac tta tac aca tgc atg gtc atg	451
Ala Ser His Ala Leu Ala His Ser His Leu Tyr Thr Cys Met Val Met	
19 24 29 34	
ctc aca gcc tcg cac acg ccc tcg cac act cat cca cac aca gct gtg	499
Leu Thr Ala Ser His Thr Pro Ser His Thr His Pro His Thr Ala Val	
35 40 45 50	
cac aag gaa cac aga gca gat gtt ctc aga ggg act ctg aca cct ttg	547
His Lys Glu His Arg Ala Asp Val Leu Arg Gly Thr Leu Thr Pro Leu	
51 56 61 66	
aga tga ggggttttta atcactggaa ggctctcttg ggtctaacag gttcagagaa	603
Arg *	
67	
tgtaacacct ggttttcaaa acatttttca aagaaataga gaattcccat acacaggcat	663
acgtgacgtt atgaggccgg tggaggccctc gctcgggtgtt gccctgtatg gttgagctgt	723
ggtttaaggt gaactctgga gtgtgggctg cangtgaggg ctccgtccct gggagctggt	783
gggaggagct ggaggctggc gccgccctgc tcaaagctgc ctgcttgggc tcgtctgagg	843
cggttccgag ctgcaggtgt ctccaccaac ctgctgtgct acacagcggg gtcctgggca	903
gcctcaccac tgcgtgtctt gggttcctct tctgtaaaac agaggctgcc tccgaccctt	963
tggacaaaca gggaagagcc gtaacacgca ggatgtgaat ggaaccttaa gcttgtgcct	1023
gaagggtcga gctactggtg gccgtgatgc ctgaccgacg cgaggctcgt cggaaggtag	1083
ggcacgatgg cagactgagc cctggtgtct atgaagcacc gagcaatgcg aggagggcag	1143
cagggaggaa cgcggcacgc gagtgggtgca gacacggaga gaacacaacg atcggacgtc	1203
gctgagggat gtatgggacg gtgagacttc actcagt	1241

<210> 442

<211> 1990

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (636) .. (1202)

<400> 442

cctcgtagac cactagtcca gtgtgggtgga atgactacca tgataaaaga attttcaagg 60



cca gat gtg cat tgg atg ggt aca gga gcc tgc gat ctg cac aga tat	1133
Pro Asp Val His Trp Met Gly Thr Gly Ala Cys Asp Leu His Arg Tyr	
151 156 161 166	
ggt ccc ttg ctt cac ctc tca gga gca gct ctg ctc tgg ggg acc acc	1181
Gly Pro Leu Leu His Leu Ser Gly Ala Ala Leu Leu Trp Gly Thr Thr	
167 172 177 182	
tgg agc ctc cct atg aaa tag aa gcacgtgact tcctggctgg gcaatccgat	1234
Trp Ser Leu Pro Met Lys *	
183 188	
actcctgctg cccagatgcc tgcccttttc ccgagagagg ggtgcccggg agaccaggta	1294
acaccaacca ggtccctgac agcccagctc caggagacca tgactttcaa ggatgtggag	1354
gtgaccttct cccaggacga gtgggggttg ctggactctg ctgagaggaa cctgtacagg	1414
gatgtgatgc tggagaatta taggaacatg gcttccctgg tgggaccatt caccaaacct	1474
gctctgatct cctggttgga agcaagggag ccatggggcc tgaacatgca ggcagctcag	1534
cctaagggga atccagttgc tgctcctaca ggagatgacc tccagggtaa aacaaacaaa	1594
ttcatcttaa atcaggaacc tttggaagaa gcagaaacct tagctgtgtc atcaggatgt	1654
cctgcgacaa gtgtttctga ggggaattgat cgatcgatcc tcagagaatc ttttcaacag	1714
aatcagagca gggacaagat gagggacctc agggagggac agatggagcc ccccaagtct	1774
gaactcatag gctggggagg aggagaaact tctaggtggg ttcgaggggg tgcgagccca	1834
cctccagccc tcagccctct tttccgcata acttggtcag ggcacaagga cttgaaggac	1894
ttgaaagtca ggggggtgag aggactggag gcgcctcgag tcaatgtctg ggaaacagag	1954
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<210> 443

<211> 2146

<212> DNA

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<220>

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<222> (690)..(1214)

<220>

<221> misc\_feature

<222> (1)...(2146)

<223> n = a,t,c or g

<400> 443



1555

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Leu Ser Val Gly Pro Lys Asp Gly Gly Lys Ala Glu Gly Leu Arg Lys	
137 142 147 152	
aga agc caa tcc ttt agg tgg ggt ggg gcc aaa gtg caa gat gcc agg	1193
Arg Ser Gln Ser Phe Arg Trp Gly Gly Ala Lys Val Gln Asp Ala Arg	
153 158 163 168	
gtt ccc aga gga ttt gag tag aa ggttgtagt cccagagta acaccttgat	1246
Val Pro Arg Gly Phe Glu *	
169 174	
ccctgcagag gaaatccagc agcagatctg gatcccgctt gtatttattg gggagagaag	1306
ctccgagtac ctgcgtgccc tctttgtcta cgagaagggg gctcgggtgc ttctggttcc	1366
agacaatacc ttccccttgg gctattacct catcccttcc acagggattg tgggactgct	1426
ggttttggcc atgggagcag taatgatagc tcgttgatc cagcaccgga aacggctcca	1486
gcggaatcga cttaccaaag agcaactgaa acagattcct acacatgact atcagaaggg	1546
agaccagtat gatgtctgtg ccatttgcct ggatgaatat gaggatgggg acaagctgcg	1606
ggtactcccc tgtgtcatg cctaccacag ccgctgcgtg gacccctggc tctactcagac	1666
ccggaagacc tgccccattt gcaagcagcc tgttcacggt ggtcctgggg acgaagacca	1726
agaggaagaa actcaagggc aagaggaggg tgatgaaggg gagccaaggg accaccctgc	1786
ctcagaaagg accccacttt tgggttctag cccactctt cccacctcct ttggttcctt	1846
agccccagct ccccttggtt ttcttgggcc ttcaacagat cccccactgt cccctccctc	1906
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cagaccgtcg tcttccctcc agtcttctga gggatagggg acattccatc ccaagcttct	2026
cccttaccca cacctatcct tttgaggggc tttgggggtg ggctggggca agcagagggg	2086
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<210> 444  
 <211> 787  
 <212> DNA  
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<220>  
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 <222> (30) .. (659)

<400> 444	
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Met Thr Lys Gln Gly Lys Glu Thr  
1 5

aac aaa gag aag gaa caa ttt agg gga caa gaa gag aaa ggg gag aac	101
Asn Lys Glu Lys Glu Gln Phe Arg Gly Gln Glu Lys Gly Glu Asn	
9 14 19 24	
aag gac agc acc ttg aca agg acc ccg ctc gag ccg ctg gag aaa aac	149
Lys Asp Ser Thr Leu Thr Arg Thr Pro Leu Glu Pro Leu Glu Lys Asn	
25 30 35 40	
aag caa atc cta gtg ctg ggc ctg gat gga gca gga aaa acc agt gtc	197
Lys Gln Ile Leu Val Leu Gly Leu Asp Gly Ala Gly Lys Thr Ser Val	
41 46 51 56	
ctg cac tct cta gct tca aac aga gtc cag cac agt gtg gca ccc acc	245
Leu His Ser Leu Ala Ser Asn Arg Val Gln His Ser Val Ala Pro Thr	
57 62 67 72	
caa ggt ttc cat gca gtt tgc atc aac act gaa gac agc cag atg gag	293
Gln Gly Phe His Ala Val Cys Ile Asn Thr Glu Asp Ser Gln Met Glu	
73 78 83 88	
ttc ctg gag att ggt ggc agt aaa cct ttt cgg tcc tac tgg gaa atg	341
Phe Leu Glu Ile Gly Gly Ser Lys Pro Phe Arg Ser Tyr Trp Glu Met	
89 94 99 104	
tac cta tcc aag gga ttg ctg ctg atc ttt gtg gtg gat tca gca gat	389
Tyr Leu Ser Lys Gly Leu Leu Leu Ile Phe Val Val Asp Ser Ala Asp	
105 110 115 120	
cac agc cga tta cct gaa gcc aag aaa tac ctt cat cag cta att gca	437
His Ser Arg Leu Pro Glu Ala Lys Lys Tyr Leu His Gln Leu Ile Ala	
121 126 131 136	
gca aac cca gta ctt cct ctg gtt gtg ttt gca aac aaa cag gat ctt	485
Ala Asn Pro Val Leu Pro Leu Val Val Phe Ala Asn Lys Gln Asp Leu	
137 142 147 152	
gaa gca gcc tat cac att aca gat atc cat gaa gct ttg gca tta tct	533
Glu Ala Ala Tyr His Ile Thr Asp Ile His Glu Ala Leu Ala Leu Ser	
153 158 163 168	
gaa gtg gga aat gac agg aag atg ttc ttg ttt gga acc tac ctg act	581
Glu Val Gly Asn Asp Arg Lys Met Phe Leu Phe Gly Thr Tyr Leu Thr	
169 174 179 184	
aag aat ggc tca gag ata ccc tcc acc atg caa gat gcc aaa gac ttg	629
Lys Asn Gly Ser Glu Ile Pro Ser Thr Met Gln Asp Ala Lys Asp Leu	
185 190 195 200	
att gca cag ctg gct gca gat gtg cag tga c caggactcag cccactgtgc	680
Ile Ala Gln Leu Ala Ala Asp Val Gln *	
201 206	
ggctcacgac tgagatgtca tcagtgttga atggcaggct tgaagccaaa gggtttccacc	740

tcaaataaaa attaagccat ttcctattaa aaaaaaaaaa aaaaaaa

787

<210> 445  
<211> 1635  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (327)..(986)

<220>  
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<223> n = a,t,c or g

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catgacaaaa gacacacata caagctccaa aggcctttgt caggtaattc ttcctccagg 120  
accccatctg gccctccct catccctccc cttggacttt gcccttctta ctggccaggc 180  
agggggggcca gagtccaggc ttgactcatt cccaccttgt cctgggctga gatcccaggt 240  
ttgtaacaga aaacaccact aaagccccag cacaggagag aaccacccag ccagaagtt 300  
ccagggaagg aactctccgg tccacc atg gag tac ctc tca gct ctg aac ccc 353  
Met Glu Tyr Leu Ser Ala Leu Asn Pro  
1 5  
agt gac tta ctc agg tca gta tct aat ata agc tcg gag ttt gga cgg 401  
Ser Asp Leu Leu Arg Ser Val Ser Asn Ile Ser Ser Glu Phe Gly Arg  
10 15 20 25  
agg gtc tgg acc tca gct cca cca ccc cag cga cct ttc cgt gtc tgt 449  
Arg Val Trp Thr Ser Ala Pro Pro Pro Gln Arg Pro Phe Arg Val Cys  
26 31 36 41  
gat cac aag cgg acc atc cgg aaa ggc ctg aca gct gcc acc cgc cag 497  
Asp His Lys Arg Thr Ile Arg Lys Gly Leu Thr Ala Ala Thr Arg Gln  
42 47 52 57  
gag ctg cta gcc aaa gca ttg gag acc cta ctg ctg aat gga gtg cta 545  
Glu Leu Leu Ala Lys Ala Leu Glu Thr Leu Leu Leu Asn Gly Val Leu  
58 63 68 73  
acc ctg gtg cta gag gag gat gga act gca gtg gac agt gag gac ttc 593  
Thr Leu Val Leu Glu Glu Asp Gly Thr Ala Val Asp Ser Glu Asp Phe  
74 79 84 89  
ttc cag ctg ctg gag gat gac acg tgc ctg atg gtg ttg cag tct ggt 641  
Phe Gln Leu Leu Glu Asp Asp Thr Cys Leu Met Val Leu Gln Ser Gly  
90 95 100 105

cag agc tgg agc cct aca agg agt gga gtg ctg tca tat ggc ctg gga	689
Gln Ser Trp Ser Pro Thr Arg Ser Gly Val Leu Ser Tyr Gly Leu Gly	
106 111 116 121	
cgg gag agg ccc aag cac agc aag gac atc gcc cga ttc acc ttt gac	737
Arg Glu Arg Pro Lys His Ser Lys Asp Ile Ala Arg Phe Thr Phe Asp	
122 127 132 137	
gtg tac aag caa aac cct cga gac ctc ttt ggc agc ctg aat gtc aaa	785
Val Tyr Lys Gln Asn Pro Arg Asp Leu Phe Gly Ser Leu Asn Val Lys	
138 143 148 153	
gcc aca ttc tac ggg ctc tac tct atg agt tgt gac ttt caa gga ctt	833
Ala Thr Phe Tyr Gly Leu Tyr Ser Met Ser Cys Asp Phe Gln Gly Leu	
154 159 164 169	
ggc cca aag aaa gta ctc agg gag ctc ctt cgt tgg acc tcc aca ctg	881
Gly Pro Lys Lys Val Leu Arg Glu Leu Leu Arg Trp Thr Ser Thr Leu	
170 175 180 185	
ctg caa ggc ctg ggc cat atg ttg ctg gga att tcc tcc acc ctt cgt	929
Leu Gln Gly Leu Gly His Met Leu Leu Gly Ile Ser Ser Thr Leu Arg	
186 191 196 201	
cat gca gtg gag ggg gct gag cag tgg cag cag aag ggc cgc ctc cat	977
His Ala Val Glu Gly Ala Glu Gln Trp Gln Gln Lys Gly Arg Leu His	
202 207 212 217	
tcc tac taa ggggctc tgagcttctg cccccagaat cattccaacc gacccactgc	1033
Ser Tyr *	
218	
aaagactatg acagcatcaa atttcaggac ctgcagacag tacaggctag ataaccacc	1093
caatttcccc actgtcctct gatccoctcg tgacagaacc tttcagcata acgcctcaca	1153
tcccaagtct atacccttac ctgaagaatg ctgttctttc ctagccacct ttctagcctc	1213
ccacttgccc tgaaaggcca agatcaagat gtcccccagg catcttgatc ccagcctgac	1273
tgctgctaca tetaatcccc taccaatgcc tctgtccct aaactcccca gcatactgat	1333
gacagccctc tetgacttta ccttgagatc tgtcttcata cccttcccct caaactaaca	1393
aaaacatttc caataaaaat atcaaatatt taccacttaa gacttctgac tccaatttaa	1453
accaggaaag ggatggggtg gatacccat tttgcctcc cccatcaaca cccagtccca	1513
gatccaaagc ctcagtcttc aagtatggag ttcaatgcnc gcctccgctt ggccaccgca	1573
ccctgctgct gttoccaaagc ttctcgccgc tttaggaagg tagtcaaggc cacatttccg	1633
ac	1635



<210> 446  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (904) .. (1293)

<400> 446

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gctcttttgc ggcccatagc ctcaaagaca aaagatatatt tggctaggcg agcttggttcc      180
tcccgtcagc acaggaagca ttcacgtctg gtcactcact tagcttcaga ctcaaaagtg      240
aacgattggc tggctgtgag ccgcaggacc ctgcggggag accaggggtgg tctctacact      300
gttgggtagc tagctggagg caaggcgctt gtataagaaa cagtccacgg accctgtcct      360
gggcaggcag aattccgcgg acaggctgtt gtttcgcata agcagcacgg gctgcggaga      420
cagaaacctc cctgagtagt acggtgtatt atatgagaac atccacttag catagcaacg      480
tctacggaca acccctgtag ctcttcttct ggattgtttt ctgtttcaaa ccatgttttc      540
ttatttcta cgagtttatg tgcttggaag cgagcgtggt cgtgaaaaac ccgtaccgcg      600
taaattcatc tgggtcccca aagactgagc cggctggcct cgttatttat gtgagcggct      660
atgtaaata ggattcggag attgctctat tgattggaga gagctggagg aggcggtctc      720
tcttccagag cgctagttag gagcggagct tgctgtcat tggtcgccag agccaatgga      780
aaggggctgc cgcgcgccg taaagagttt gtagaggcag ttcgggtgcg gtacgttgca      840
ttccggtacc ggacgccgag agcggtttgt ctccgtctct ggagttgtag gcgagaggtg      900

atc  atg tcc ggt cgc ggg aaa cag ggc ggc aaa gtg cga gca aag gcc      948
      Met Ser Gly Arg Gly Lys Gln Gly Gly Lys Val Arg Ala Lys Ala
        1             5             10

aaa tcc cgc tcc tcc cgc gcg ggc ctg cag ttc ccg gtg ggc cga gtg      996
Lys Ser Arg Ser Ser Arg Ala Gly Leu Gln Phe Pro Val Gly Arg Val
  16             21             26             31

cac aga ctg ctg cgc aaa ggg aac tac gcg gag cga gtg ggc gcc ggg      1044
His Arg Leu Leu Arg Lys Gly Asn Tyr Ala Glu Arg Val Gly Ala Gly
  32             37             42             47

gcg ccg gtg tac ctg gcg gcg gtg ttg gag tac ctt acg gcg gag atc      1092
Ala Pro Val Tyr Leu Ala Ala Val Leu Glu Tyr Leu Thr Ala Glu Ile
  48             53             58             63

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ctg gag ctg gct ggc aac gcc gcg cgt gac aac aag aag acc agg ata	1140
Leu Glu Leu Ala Gly Asn Ala Ala Arg Asp Asn Lys Lys Thr Arg Ile	
64 69 74 79	
att ccc cgc cac ctg cag ctc gcc atc cgc aac gac gag gag tta aac	1188
Ile Pro Arg His Leu Gln Leu Ala Ile Arg Asn Asp Glu Glu Leu Asn	
80 85 90 95	
aag ctg ctg ggc aaa gtg acc atc gct cag ggc ggc gtc ctg ccc aac	1236
Lys Leu Leu Gly Lys Val Thr Ile Ala Gln Gly Gly Val Leu Pro Asn	
96 101 106 111	
atc cag gcc gtg ctg ctg ccc aag aag acg gag agt cag aag acg aag	1284
Ile Gln Ala Val Leu Leu Pro Lys Lys Thr Glu Ser Gln Lys Thr Lys	
112 117 122 127	
agc aaa tga ccctgac gccgccctca gggagctggc tccgccagca aaggcccttt	1340
Ser Lys *	
128	
tcattggtcgt cccgcaatgc ttttgaatgt gctggatgtc atggagggcc ggtgacatct	1400
agcggggagg tgggcggcga ggggtcccgcc gggagccaat aaagtgtgtg aaaatcgta	1460
aaaaaaaaa a	1471

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 <212> DNA  
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 <222> (152) .. (1438)

<400> 447

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cgtcagggcg caggcgcgcg ggtcccggca gcccgtagaga cgcccgtgc tgggcgcggg	120
tagccgtctg aggtgccgga gctgcgggag g atg gag ccg ctg aag gtg gaa	172
Met Glu Pro Leu Lys Val Glu	
1 5	
aag ttc gca acc gcc aac agg gga aac ggg ctg cgc gcc gtg acc ccg	220
Lys Phe Ala Thr Ala Asn Arg Gly Asn Gly Leu Arg Ala Val Thr Pro	
8 13 18 23	
ctg cgc ccc gga gag cta ctc ttc cgc tgc gat ccc ttg gcg tac acg	268
Leu Arg Pro Gly Glu Leu Leu Phe Arg Ser Asp Pro Leu Ala Tyr Thr	
24 29 34 39	
gtg tgc aag ggg agt cgt ggc gtc gtc tgc gac cgc tgc ctt ctc ggg	316
Val Cys Lys Gly Ser Arg Gly Val Val Cys Asp Arg Cys Leu Leu Gly	

40	45	50	55	
aag gaa aag ctg atg cga tgc tct cag tgc cgc gtc gcc aaa tac tgt				364
Lys Glu Lys Leu Met Arg Cys Ser Gln Cys Arg Val Ala Lys Tyr Cys				
56	61	66	71	
agt gct aag tgt cag aaa aaa gct tgg cca gac cac aag cgg gaa tgc				412
Ser Ala Lys Cys Gln Lys Lys Ala Trp Pro Asp His Lys Arg Glu Cys				
72	77	82	87	
aaa tgc ctt aaa agc tgc aaa ccc aga tat cct cca gac tcc gtt cga				460
Lys Cys Leu Lys Ser Cys Lys Pro Arg Tyr Pro Pro Asp Ser Val Arg				
88	93	98	103	
ctt ctt ggc aga gtt gtc ttc aaa ctt atg gat gga gca cct tca gaa				508
Leu Leu Gly Arg Val Val Phe Lys Leu Met Asp Gly Ala Pro Ser Glu				
104	109	114	119	
tca gag aag ctt tac tca ttt tat gat ctg gag tca aat att aac aaa				556
Ser Glu Lys Leu Tyr Ser Phe Tyr Asp Leu Glu Ser Asn Ile Asn Lys				
120	125	130	135	
ctg act gaa gat aag aaa gag ggc ctc agg caa ctc gta atg aca ttt				604
Leu Thr Glu Asp Lys Lys Glu Gly Leu Arg Gln Leu Val Met Thr Phe				
136	141	146	151	
caa cat ttc atg aga gaa gaa ata cag gat gcc tct cag ctg cca cct				652
Gln His Phe Met Arg Glu Glu Ile Gln Asp Ala Ser Gln Leu Pro Pro				
152	157	162	167	
gcc ttt gac ctt ttt gaa gcc ttt gca aaa gtg atc tgc aac tct ttc				700
Ala Phe Asp Leu Phe Glu Ala Phe Ala Lys Val Ile Cys Asn Ser Phe				
168	173	178	183	
acc atc tgt aat gcg gag atg cag gaa gtt ggt gtt ggc cta tat ccc				748
Thr Ile Cys Asn Ala Glu Met Gln Glu Val Gly Val Gly Leu Tyr Pro				
184	189	194	199	
agt atc tct ttg ctc aat cac agc tgt gac ccc aac tgt tcg att gtg				796
Ser Ile Ser Leu Leu Asn His Ser Cys Asp Pro Asn Cys Ser Ile Val				
200	205	210	215	
ttc aat ggg ccc cac ctc tta ctg cga gca gtc cga gac atc gag gtg				844
Phe Asn Gly Pro His Leu Leu Leu Arg Ala Val Arg Asp Ile Glu Val				
216	221	226	231	
gga gag gag ctc acc atc tgc tac ctg gat atg ctg atg acc agt gag				892
Gly Glu Glu Leu Thr Ile Cys Tyr Leu Asp Met Leu Met Thr Ser Glu				
232	237	242	247	
gag cgc cgg aag cag ctg agg gac cag tac tgc ttt gaa tgt gac tgt				940
Glu Arg Arg Lys Gln Leu Arg Asp Gln Tyr Cys Phe Glu Cys Asp Cys				
248	253	258	263	
ttc cgt tgc caa acc cag gac aag gat gct gat atg cta act ggt gat				988
Phe Arg Cys Gln Thr Gln Asp Lys Asp Ala Asp Met Leu Thr Gly Asp				
264	269	274	279	

gag caa gta tgg aag gaa gtt caa gaa tcc ctg aaa aaa att gaa gaa	1036
Glu Gln Val Trp Lys Glu Val Gln Glu Ser Leu Lys Lys Ile Glu Glu	
280 285 290 295	
ctg aag gca cac tgg aag tgg gag cag gtt ctg gcc atg tgc cag gcg	1084
Leu Lys Ala His Trp Lys Trp Glu Gln Val Leu Ala Met Cys Gln Ala	
296 301 306 311	
atc ata agc agc aat tct gaa cgg ctt ccc gat atc aac atc tac cag	1132
Ile Ile Ser Ser Asn Ser Glu Arg Leu Pro Asp Ile Asn Ile Tyr Gln	
312 317 322 327	
ctg aag gtg ctc gac tgc gcc atg gat gcc tgc atc aac ctc ggc ctg	1180
Leu Lys Val Leu Asp Cys Ala Met Asp Ala Cys Ile Asn Leu Gly Leu	
328 333 338 343	
ttg gag gaa gcc ttg ttc tat ggt act cgg acc atg gag cca tac agg	1228
Leu Glu Glu Ala Leu Phe Tyr Gly Thr Arg Thr Met Glu Pro Tyr Arg	
344 349 354 359	
att ttt ttc cca gga agc cat ccc gtc aga ggg gtt caa gtg atg aaa	1276
Ile Phe Phe Pro Gly Ser His Pro Val Arg Gly Val Gln Val Met Lys	
360 365 370 375	
gtt ggc aaa ctg cag cta cat caa ggc atg ttt ccc caa gca atg aag	1324
Val Gly Lys Leu Gln Leu His Gln Gly Met Phe Pro Gln Ala Met Lys	
376 381 386 391	
aat ctg aga ctg gct ttt gat att atg aga gtg aca cat ggc aga gaa	1372
Asn Leu Arg Leu Ala Phe Asp Ile Met Arg Val Thr His Gly Arg Glu	
392 397 402 407	
cac agc ctg att gaa gat ttg att cta ctt tta gaa gaa tgc gac gcc	1420
His Ser Leu Ile Glu Asp Leu Ile Leu Leu Leu Glu Glu Cys Asp Ala	
408 413 418 423	
aac atc aga gca tcc taa gggaac gcagtcagag ggaaatacgg cgtgtgtctt	1474
Asn Ile Arg Ala Ser *	
424 429	
tggtgaatgc cttattgagg tcacacactc tatgctttgt tagctgtgtg aacctctcct	1534
attggaaatt ctgttccgtg tttgtgtagg taaataaagg cagacatggt ttgcaaacca	1594
caagaatcat tagttgtaga gaagcacgat tataataaat tcaaaacatt tggttgaaaa	1654
aaaaaaaa	1662

<210> 448  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (20)..(2320)

<400> 448

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Ser Ser Ala Ala Ala Ala Ala Ala Ala Asp Ser Arg Met Asn Asn Pro	
12 17 22 27	
tca gaa acc agt aaa cca tct atg gag agt gga gat ggc aac aca ggc	148
Ser Glu Thr Ser Lys Pro Ser Met Glu Ser Gly Asp Gly Asn Thr Gly	
28 33 38 43	
aca caa acc aat ggt ctg gac ttt cag aag cag cct gtg cct gta gga	196
Thr Gln Thr Asn Gly Leu Asp Phe Gln Lys Gln Pro Val Pro Val Gly	
44 49 54 59	
gga gca atc tca aca gcc cag gcg cag gct ttc ctt gga cat ctc cat	244
Gly Ala Ile Ser Thr Ala Gln Ala Gln Ala Phe Leu Gly His Leu His	
60 65 70 75	
cag gtc caa ctc gct gga aca agt tta cag gct gct gct cag tct tta	292
Gln Val Gln Leu Ala Gly Thr Ser Leu Gln Ala Ala Ala Gln Ser Leu	
76 81 86 91	
aat gta cag tct aaa tct aat gaa gaa tcg ggg gat tcg cag cag cca	340
Asn Val Gln Ser Lys Ser Asn Glu Glu Ser Gly Asp Ser Gln Gln Pro	
92 97 102 107	
agc cag cct tcc cag cag cct tca gtg cag gca gcc att ccc cag acc	388
Ser Gln Pro Ser Gln Gln Pro Ser Val Gln Ala Ala Ile Pro Gln Thr	
108 113 118 123	
cag ctt atg cta gct gga gga cag ata act ggg ctt act ttg acg cct	436
Gln Leu Met Leu Ala Gly Gly Gln Ile Thr Gly Leu Thr Leu Thr Pro	
124 129 134 139	
gcc cag caa cag tta cta ctc cag cag gca cag gca cag gca cag ctg	484
Ala Gln Gln Gln Leu Leu Leu Gln Gln Ala Gln Ala Gln Ala Gln Leu	
140 145 150 155	
ctg gct gct gca gtg cag cag cac tcc gcc agc cag cag cac agt gct	532
Leu Ala Ala Ala Val Gln Gln His Ser Ala Ser Gln Gln His Ser Ala	
156 161 166 171	
gct gga gcc acc atc tcc gcc tct gct gcc acg ccc atg acg cag atc	580
Ala Gly Ala Thr Ile Ser Ala Ser Ala Ala Thr Pro Met Thr Gln Ile	
172 177 182 187	
ccc ctg tct cag ccc ata cag atc gca cag gat ctt caa caa ctg caa	628
Pro Leu Ser Gln Pro Ile Gln Ile Ala Gln Asp Leu Gln Gln Leu Gln	
188 193 198 203	

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Gln Leu Gln Gln Gln Asn Leu Asn Leu Gln Gln Phe Val Leu Val His	
204 209 214 219	
cca acc acc aat ttg cag cca gcg cag ttt atc atc tca cag acg ccc	724
Pro Thr Thr Asn Leu Gln Pro Ala Gln Phe Ile Ile Ser Gln Thr Pro	
220 225 230 235	
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Gln Gly Gln Gln Gly Leu Leu Gln Ala Gln Asn Leu Gln Thr Gln Leu	
236 241 246 251	
cct cag caa agc caa gcc aac ctc cta cag tcg cag cca agc atc acc	820
Pro Gln Gln Ser Gln Ala Asn Leu Leu Gln Ser Gln Pro Ser Ile Thr	
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ctc acc tcc cag cca gca acc cca aca cgc aca ata gca gca acc cca	868
Leu Thr Ser Gln Pro Ala Thr Pro Thr Arg Thr Ile Ala Ala Thr Pro	
268 273 278 283	
att cag aca ctt cca cag agc cag tca aca cca aag cga att gat act	916
Ile Gln Thr Leu Pro Gln Ser Gln Ser Thr Pro Lys Arg Ile Asp Thr	
284 289 294 299	
ccc agc ttg gag gag ccc agt gac ctt gag gag ctt gag cag ttt gcc	964
Pro Ser Leu Glu Glu Pro Ser Asp Leu Glu Glu Leu Glu Gln Phe Ala	
300 305 310 315	
aag acc ttc aaa caa aga cga atc aaa ctt gga ttc act cag ggt gat	1012
Lys Thr Phe Lys Gln Arg Arg Ile Lys Leu Gly Phe Thr Gln Gly Asp	
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gtt ggg ctc gct atg ggg aaa cta tat gga aat gac ttc agc caa act	1060
Val Gly Leu Ala Met Gly Lys Leu Tyr Gly Asn Asp Phe Ser Gln Thr	
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acc atc tct cga ttt gaa gcc ttg aac ctc agc ttt aag aac atg tgc	1108
Thr Ile Ser Arg Phe Glu Ala Leu Asn Leu Ser Phe Lys Asn Met Cys	
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Lys Leu Lys Pro Leu Leu Glu Lys Trp Leu Asn Asp Ala Glu Asn Leu	
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Ser Ser Asp Ser Ser Leu Ser Ser Pro Ser Ala Leu Asn Ser Pro Gly	
380 385 390 395	
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Ile Glu Gly Leu Ser Arg Arg Arg Lys Lys Arg Thr Ser Ile Glu Thr	
396 401 406 411	
aac atc cgt gtg gcc tta gag aag agt ttc ttg gag aat caa aag cct	1300
Asn Ile Arg Val Ala Leu Glu Lys Ser Phe Leu Glu Asn Gln Lys Pro	
412 417 422 427	
acc tcg gaa gag atc act atg att gct gat cag ctc aat atg gaa aaa	1348

Thr Ser Glu Glu Ile	Thr Met Ile Ala Asp	Gln Leu Asn Met Glu Lys	
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gag gtg att cgt gtt	tgg ttc tgt aac cgc	cgc cag aaa gaa aaa aga	1396
Glu Val Ile Arg Val	Trp Phe Cys Asn Arg	Arg Gln Lys Glu Lys Arg	
444	449	454	459
atc aac cca cca agc	agt ggt ggg acc agc	agc tca cct att aaa gca	1444
Ile Asn Pro Pro Ser	Ser Gly Gly Thr Ser	Ser Ser Pro Ile Lys Ala	
460	465	470	475
att ttc ccc agc cca	act tca ctg gtg gcg	acc aca cca agc ctt gtg	1492
Ile Phe Pro Ser Pro	Thr Ser Leu Val Ala	Thr Thr Pro Ser Leu Val	
476	481	486	491
act agc agt gca gca	act acc ctc aca gtc	agc cct gtc ctc cct ctg	1540
Thr Ser Ser Ala Ala	Thr Thr Leu Thr Val	Ser Pro Val Leu Pro Leu	
492	497	502	507
acc agt gct gct gtg	acg aat ctt tca gtt	aca ggc act tca gac acc	1588
Thr Ser Ala Ala Val	Thr Asn Leu Ser Val	Thr Gly Thr Ser Asp Thr	
508	513	518	523
acc tcc aac aac aca	gca acc gtg att tcc	aca gcg cct cca gct tcc	1636
Thr Ser Asn Asn Thr	Ala Thr Val Ile Ser	Thr Ala Pro Pro Ala Ser	
524	529	534	539
tca gca gtc acg tcc	ccc tct ctg agt ccc	tcc cct tct gcc tca gcc	1684
Ser Ala Val Thr Ser	Pro Ser Leu Ser Pro	Ser Pro Ser Ala Ser Ala	
540	545	550	555
tcc acc tcc gag gca	tcc agt gcc agt gag	acc agc aca aca cag acc	1732
Ser Thr Ser Glu Ala	Ser Ser Ala Ser Glu	Thr Ser Thr Thr Gln Thr	
556	561	566	571
acc tcc act cct ttg	tcc tcc cct ctt ggg	acc agc cag gtg atg gtg	1780
Thr Ser Thr Pro Leu	Ser Ser Pro Leu Gly	Thr Ser Gln Val Met Val	
572	577	582	587
aca gca tca ggt ttg	caa aca gca gca gct	gct gcc ctt caa gga gct	1828
Thr Ala Ser Gly Leu	Gln Thr Ala Ala Ala	Ala Ala Leu Gln Gly Ala	
588	593	598	603
gca cag ttg cca gca	aat gcc agt ctt gct	gcc atg gca gct gct gca	1876
Ala Gln Leu Pro Ala	Asn Ala Ser Leu Ala	Ala Met Ala Ala Ala Ala	
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gga cta aac cca agc	ctg atg gca ccc tca	cag ttt gcg gct gga ggt	1924
Gly Leu Asn Pro Ser	Leu Met Ala Pro Ser	Gln Phe Ala Ala Gly Gly	
620	625	630	635
gcc tta ctc agt ctg	aat cca ggg acc ctg	agc ggt gct ctc agc cca	1972
Ala Leu Leu Ser Leu	Asn Pro Gly Thr Leu	Ser Gly Ala Leu Ser Pro	
636	641	646	651
gct cta atg agc aac	agt aca ctg gca act	att caa gct ctt gct tct	2020
Ala Leu Met Ser Asn	Ser Thr Leu Ala Thr	Ile Gln Ala Leu Ala Ser	

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Gly Gly Ser Leu Pro	Ile Thr Ser Leu Asp	Ala Thr Gly Asn Leu Val		
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ttt gcc aat gcg gga	gga gcc ccc aac atc	gtg act gcc cct ctg ttc		2116
Phe Ala Asn Ala Gly	Gly Ala Pro Asn Ile	Val Thr Ala Pro Leu Phe		
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Leu Asn Pro Gln Asn	Leu Ser Leu Leu Thr	Ser Asn Pro Val Ser Leu		
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gtc tct gcc gcc gca	gca tct gca ggg aac	tct gca cct gta gcc agc		2212
Val Ser Ala Ala Ala	Ala Ser Ala Gly Asn	Ser Ala Pro Val Ala Ser		
716	721	726	731	
ctt cac gcc acc tcc	acc tct gct gag tcc	atc cag aac tct ctc ttc		2260
Leu His Ala Thr Ser	Thr Ser Ala Glu Ser	Ile Gln Asn Ser Leu Phe		
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aca gtg gcc tct gcc	agc ggg gct gcg tcc	acc acc acc acc gcc tcc		2308
Thr Val Ala Ser Ala	Ser Gly Ala Ala Ser	Thr Thr Thr Thr Ala Ser		
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Lys Ala Gln *				
764				
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tatttctca tgattagggtt atgcttttttg gccagaatat ctcaggaggg atgctgtgtc	180
cctctcgggg ttttaacttt tctttctca cacctagatc aagtactttg tgggtgcagaa	240
cccgctctct tggcgggtct ccttgcagct cctgcctctc tcctgtacc ctaaaccga	300



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	Met Gln Met Ile Asn	
	1	
ttc aca act ggt gaa ttc cag ctc acc gaa gct tgc cct tac ctg ggt		403
Phe Thr Thr Gly Glu Phe Gln Leu Thr Glu Ala Cys Pro Tyr Leu Gly		
6 11 16 21		
acg cat tct gag gaa tcc agg ttt ggc atc ctc cac tta cat ctg cag		451
Thr His Ser Glu Glu Ser Arg Phe Gly Ile Leu His Leu His Leu Gln		
22 27 32 37		
cct ttg gaa atg aaa agg gtt ggc gta gtt ttc aca cct gct gac tat		499
Pro Leu Glu Met Lys Arg Val Gly Val Val Phe Thr <sup>4</sup> Pro Ala Asp Tyr		
38 43 48 53		
gga aaa gtt acc tca ctc ata cta atc cgg aat aac ttg act gtt att		547
Gly Lys Val Thr Ser Leu Ile Leu Ile Arg Asn Asn Leu Thr Val Ile		
54 59 64 69		
gac atg att ggc gtg gaa gga ttt gga gca aga gag tta tta aaa gtg		595
Asp Met Ile Gly Val Glu Gly Phe Gly Ala Arg Glu Leu Leu Lys Val		
70 75 80 85		
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Gly Gly Arg Leu Pro Gly Ala Gly Gly Ser Leu Arg Phe Lys Val Pro		
86 91 96 101		
gag tcc acg ctg atg gac tgc cgt aga caa ctg aaa gac agt aag caa		691
Glu Ser Thr Leu Met Asp Cys Arg Arg Gln Leu Lys Asp Ser Lys Gln		
102 107 112 117		
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Ile Leu Ser Ile Thr Lys Asn Phe Lys Val Glu Asn Ile Gly Pro Leu		
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Pro Ile Thr Val Ser Ser Leu Lys Ile Asn Gly Tyr Asn Cys Gln Gly		
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tat gga ttc gag gtg ctg gat tgt cat cag ttt tcc ctg gac cca aac		835
Tyr Gly Phe Glu Val Leu Asp Cys His Gln Phe Ser Leu Asp Pro Asn		
150 155 160 165		
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Thr Ser Arg Asp Ile Ser Ile Val Phe Thr Pro Asp Phe Thr Ser Ser		
166 171 176 181		
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Trp Val Ile Arg Asp Leu Ser Leu Val Thr Ala Ala Asp Leu Glu Phe		
182 187 192 197		
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Arg Phe Thr Leu Asn Val Thr Leu Pro His His Leu Leu Pro Leu Cys		
198 203 208 213		
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Ala Asp Val Val Pro Gly Pro Ser Trp Glu Glu Ser Phe Trp Arg Leu	
214 219 224 229	
acg gtc ttc ttt gtc agt ttg tcc ctg ttg ggt gtg att tta ata gcc	1075
Thr Val Phe Phe Val Ser Leu Ser Leu Leu Gly Val Ile Leu Ile Ala	
230 235 240 245	
ttc caa caa gca cag tac att ctc atg gaa ttc atg aaa aca aga cag	1123
Phe Gln Gln Ala Gln Tyr Ile Leu Met Glu Phe Met Lys Thr Arg Gln	
246 251 256 261	
agg caa aat gct agc tcc tct tca cag caa aac aat ggt cct atg gat	1171
Arg Gln Asn Ala Ser Ser Ser Ser Gln Gln Asn Asn Gly Pro Met Asp	
262 267 272 277	
gta atc agc ccc cat tct tac aaa agc aat tgc aag aac ttt ctc gat	1219
Val Ile Ser Pro His Ser Tyr Lys Ser Asn Cys Lys Asn Phe Leu Asp	
278 283 288 293	
aca tat ggc ccc tct gat aaa ggc agg ggg aag aac tgc ctt cca gtg	1267
Thr Tyr Gly Pro Ser Asp Lys Gly Arg Gly Lys Asn Cys Leu Pro Val	
294 299 304 309	
aac act ccc caa agc agg atc cag aat gct gca aag agg agc cca gcc	1315
Asn Thr Pro Gln Ser Arg Ile Gln Asn Ala Ala Lys Arg Ser Pro Ala	
310 315 320 325	
acc tat ggt cat tct cag aag aag cac aaa tgc tca gtg tat tac agt	1363
Thr Tyr Gly His Ser Gln Lys Lys His Lys Cys Ser Val Tyr Tyr Ser	
326 331 336 341	
aaa cac aaa acc agc aca gct gcg gcc agc agc acc agc acg act act	1411
Lys His Lys Thr Ser Thr Ala Ala Ala Ser Ser Thr Ser Thr Thr Thr	
342 347 352 357	
gag gaa aaa cag act tca ccc ctg ggc agc tca ctg cct gct gct aaa	1459
Glu Glu Lys Gln Thr Ser Pro Leu Gly Ser Ser Leu Pro Ala Ala Lys	
358 363 368 373	
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Glu Asp Ile Cys Thr Asp Ala Met Arg Glu Asn Trp Ile Ser Leu Arg	
374 379 384 389	
tat gca agt ggc ata aat gtc aac ctg cag aag aat tta acc ctt ccc	1555
Tyr Ala Ser Gly Ile Asn Val Asn Leu Gln Lys Asn Leu Thr Leu Pro	
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aaa aac tta ctg aat aaa gaa gaa aac aca ctg aaa aac aca att gtt	1603
Lys Asn Leu Leu Asn Lys Glu Glu Asn Thr Leu Lys Asn Thr Ile Val	
406 411 416 421	
ttc agt aat cct tct tca gaa tgt agt atg aag gag gga ata cag aca	1651
Phe Ser Asn Pro Ser Ser Glu Cys Ser Met Lys Glu Gly Ile Gln Thr	
422 427 432 437	
tgt atg ttt cct aag gaa act gac att aaa act tca gag aac aca gcc	1699
Cys Met Phe Pro Lys Glu Thr Asp Ile Lys Thr Ser Glu Asn Thr Ala	



tgg ggg agc tgg agc agc acc agc agc tcc gac ggg gat aag aag ccc Trp Gly Ser Trp Ser Ser Thr Ser Ser Ser Asp Gly Asp Lys Lys Pro 678 683 688 693	2419
atg gtg gac gcc cag cac ttc ctg ccg gcc gga gac agt gtt tca caa Met Val Asp Ala Gln His Phe Leu Pro Ala Gly Asp Ser Val Ser Gln 694 699 704 709	2467
aat gat ttt cct tct gaa gct ccc atc tcc ttg aat ctt tct cat aac Asn Asp Phe Pro Ser Glu Ala Pro Ile Ser Leu Asn Leu Ser His Asn 710 715 720 725	2515
atc tgc aat ccc atg acc gtg aat agt ctc cca caa <sup>i</sup> tac gca gag cct Ile Cys Asn Pro Met Thr Val Asn Ser Leu Pro Gln Tyr Ala Glu Pro 726 731 736 741	2563
tcc tgt ccc agc ctt cct gcc ggg ccc aca ggt gtt gaa gaa gat aaa Ser Cys Pro Ser Leu Pro Ala Gly Pro Thr Gly Val Glu Glu Asp Lys 742 747 752 757	2611
ggc ctt tac tca cct gga gac ctg tgg ccc act ccg cca gtg tgt gtg Gly Leu Tyr Ser Pro Gly Asp Leu Trp Pro Thr Pro Pro Val Cys Val 758 763 768 773	2659
aca agc agc tta aac tgc acc ctg gag aac ggc gtg cct tgt gtg att Thr Ser Ser Leu Asn Cys Thr Leu Glu Asn Gly Val Pro Cys Val Ile 774 779 784 789	2707
cag gag tgc gcc ccg gtt cat aat agt ttc att gat tgg agt gca aca Gln Glu Ser Ala Pro Val His Asn Ser Phe Ile Asp Trp Ser Ala Thr 790 795 800 805	2755
tgc gaa ggc cag ttt tcc agc gca tac tgt cca ttg gaa ttg aac gat Cys Glu Gly Gln Phe Ser Ser Ala Tyr Cys Pro Leu Glu Leu Asn Asp 806 811 816 821	2803
tac aat gcc ttt cca gaa gaa aac atg aac tat gcc aat ggc ttc ccc Tyr Asn Ala Phe Pro Glu Glu Asn Met Asn Tyr Ala Asn Gly Phe Pro 822 827 832 837	2851
tgt cct gca gat gtt cag aca gac ttt att gat cac aac tct cag tct Cys Pro Ala Asp Val Gln Thr Asp Phe Ile Asp His Asn Ser Gln Ser 838 843 848 853	2899
acc tgg aac acc cca ccc aac atg cct gct gcc tgg gga cat gcc agt Thr Trp Asn Thr Pro Pro Asn Met Pro Ala Ala Trp Gly His Ala Ser 854 859 864 869	2947
ttc atc agc tct ccg ccc tac ctc aca agc acc cga agc ttg tct cca Phe Ile Ser Ser Pro Pro Tyr Leu Thr Ser Thr Arg Ser Leu Ser Pro 870 875 880 885	2995
atg tct gga ctt ttt ggt tcc atc tgg gcc ccg caa agc gat gtg tat Met Ser Gly Leu Phe Gly Ser Ile Trp Ala Pro Gln Ser Asp Val Tyr 886 891 896 901	3043

gaa aat tgc tgc ccc atc aac ccc acc acg gaa cat tcg acc cac atg 3091  
 Glu Asn Cys Cys Pro Ile Asn Pro Thr Thr Glu His Ser Thr His Met  
 902 907 912 917

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 Glu Asn Gln Ala Val Val Cys Lys Glu Tyr Tyr Pro Gly Phe Asn Pro  
 918 923 928 933

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 Phe Arg Ala Tyr Met Asn Leu Asp Ile Trp Thr Thr Thr Ala Asn Arg  
 934 939 944 949

aat gca aat ttc cca ctg tct aga gac tcg agt tac tgt ggg aat gtg 3235  
 Asn Ala Asn Phe Pro Leu Ser Arg Asp Ser Ser Tyr Cys Gly Asn Val  
 950 955 960 965

tga aaat aattggattt ttaaacaatg tgaataaaga ggcttggtgtt ttgattacta 3292  
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 Met Gly Arg Val Gln Leu Phe Glu Ile Ser Leu  
 1 5

agc cac ggc cgc gtc gtc tac agc ccc ggg gag ccg ttg gct ggg acc 157  
 Ser His Gly Arg Val Val Tyr Ser Pro Gly Glu Pro Leu Ala Gly Thr  
 12 17 22 27

gtg cgc gtg cgc ctg ggg gca ccg ctg ccg ttc cga gcc atc cgg gtg 205  
 Val Arg Val Arg Leu Gly Ala Pro Leu Pro Phe Arg Ala Ile Arg Val  
 28 33 38 43

acc tgc ata ggt tcc tgc ggg gtc tcc aac aag gct aat gac aca gcg 253  
 Thr Cys Ile Gly Ser Cys Gly Val Ser Asn Lys Ala Asn Asp Thr Ala  
 44 49 54 59

tgg gta gtg gag gag ggt tac ttc aac agt tcc ctg tcg ctg gca gac 301  
 Trp Val Val Glu Glu Gly Tyr Phe Asn Ser Ser Leu Ser Leu Ala Asp

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Lys Gly Ser Leu Pro Ala Gly Glu His Ser Phe Pro Phe Gln Phe Leu				
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Leu Pro Ala Thr Ala Pro Thr Ser Phe Glu Gly Pro Phe Gly Lys Ile				
92	97	102	107	
gtg cac cag gtg agg gcc gcc atc cac acg cca cgg ttt tcc aag gat				445
Val His Gln Val Arg Ala Ala Ile His Thr Pro Arg Phe Ser Lys Asp				
108	113	118	123	
cac aag tgc agc ctc gtg ttc tat atc ttg agc ccc ttg aac ctg aac				493
His Lys Cys Ser Leu Val Phe Tyr Ile Leu Ser Pro Leu Asn Leu Asn				
124	129	134	139	
agc atc cca gac att gag caa ccc aac gtg gcc tct gcc acc aag aag				541
Ser Ile Pro Asp Ile Glu Gln Pro Asn Val Ala Ser Ala Thr Lys Lys				
140	145	150	155	
ttc tcc tac aag ctg gtg aag acg ggc agc gtg gtc ctc aca gcc agc				589
Phe Ser Tyr Lys Leu Val Lys Thr Gly Ser Val Val Leu Thr Ala Ser				
156	161	166	171	
act gat ctc cgc ggc tat gtg gtg ggg cag gca ctg cag ctg cat gcc				637
Thr Asp Leu Arg Gly Tyr Val Val Gly Gln Ala Leu Gln Leu His Ala				
172	177	182	187	
gac gtt gag aac cag tca ggc aag gac acc agc cct gtg gtg gcc agt				685
Asp Val Glu Asn Gln Ser Gly Lys Asp Thr Ser Pro Val Val Ala Ser				
188	193	198	203	
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Leu Leu Gln Lys Val Ser Tyr Lys Ala Lys Arg Trp Ile His Asp Val				
204	209	214	219	
cgg acc att gcg gag gtg gag ggt gcg ggc gtc aag gcc tgg cgg cgg				781
Arg Thr Ile Ala Glu Val Glu Gly Ala Gly Val Lys Ala Trp Arg Arg				
220	225	230	235	
gcg cag tgg cac gag cag atc ctg gtg cct gcc ttg ccc cag tcc gcc				829
Ala Gln Trp His Glu Gln Ile Leu Val Pro Ala Leu Pro Gln Ser Ala				
236	241	246	251	
ctg ccg ggc tgc agc ctc atc cac atc gac tac tac tta cag gtc tct				877
Leu Pro Gly Cys Ser Leu Ile His Ile Asp Tyr Tyr Leu Gln Val Ser				
252	257	262	267	
ctg aag gcg ccg gaa gct act gtg acc ctc ccg gtc ttc att ggc aat				925
Leu Lys Ala Pro Glu Ala Thr Val Thr Leu Pro Val Phe Ile Gly Asn				
268	273	278	283	
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Ile Ala Val Asn His Ala Pro Val Ser Pro Arg Pro Gly Leu Gly Leu				
284	289	294	299	

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Pro Pro Gly Ala Pro Pro Leu Val Val Pro Ser Ala Pro Pro Gln Glu	
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Glu Ala Glu Ala Glu Ala Ala Gly Gly Pro His Phe Leu Asp Pro	
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Val Phe Leu Ser Thr Lys Ser His Ser Gln Arg Gln Pro Leu Leu Ala	
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acc ttg agt tct gtg cct ggt gcg ccg gag ccc tgc cct cag gat ggc	1165
Thr Leu Ser Ser Val Pro Gly Ala Pro Glu Pro Cys Pro Gln Asp Gly	
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Ser Pro Ala Ser His Pro Leu His Pro Pro Leu Cys Ile Ser Thr Gly	
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Ala Thr Val Pro Tyr Phe Ala Glu Gly Ser Gly Gly Pro Val Pro Thr	
380 385 390 395	
acc agc acc ttg att ctt cct cca gag tac agt tct tgg ggc tac ccc	1309
Thr Ser Thr Leu Ile Leu Pro Pro Glu Tyr Ser Ser Trp Gly Tyr Pro	
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tat gag gcc cca ccg tct tat gag cag agc tgc ggc ggc gtg gaa ccc	1357
Tyr Glu Ala Pro Pro Ser Tyr Glu Gln Ser Cys Gly Gly Val Glu Pro	
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Ser Leu Thr Pro Glu Ser *	
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Met Arg Lys Lys	
1	
tgg aaa atg gga ggc atg aaa tac ata ttt tgc ttg ttg ttc ttt ctt	164
Trp Lys Met Gly Gly Met Lys Tyr Ile Phe Ser Leu Leu Phe Phe Leu	
5 10 15 20	
ttg cta gaa gga ggc aaa aca gag caa gta aaa cat tca gag aca tat	212
Leu Leu Glu Gly Gly Lys Thr Glu Gln Val Lys His Ser Glu Thr Tyr	
21 26 31 36	
tgc atg ttt caa gac aag aag tac aga gtg ggt gag aga tgg cat cct	260
Cys Met Phe Gln Asp Lys Lys Tyr Arg Val Gly Glu Arg Trp His Pro	
37 42 47 52	
tac ctg gaa cct tat ggg ttg gtt tac tgc gtg aac tgc atc tgc tca	308
Tyr Leu Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser	
53 58 63 68	
cag aat ggg aat gtg ctt tgc agc cga gtc aga tgt cca aat gtt cat	356
Gln Asn Gly Asn Val Leu Cys Ser Arg Val Arg Cys Pro Asn Val His	
69 74 79 84	
tgc ctt tct cct gtg cat att cct cat ctg tgc tgc cct cgc tgc cca	404
Cys Leu Ser Pro Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro	
85 90 95 100	
gaa gac tcc tta ccc cca gtg aac aat aag gtg acc agc aag tct tgc	452
Glu Asp Ser Leu Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys	
101 106 111 116	
gag tac aat ggg aca act tac caa cat gga gag ctg ttc gta gct gaa	500
Glu Tyr Asn Gly Thr Thr Tyr Gln His Gly Glu Leu Phe Val Ala Glu	
117 122 127 132	
ggg ctc ttt cag aat cgg caa ccc aat caa tgc acc cag tgc agc tgt	548
Gly Leu Phe Gln Asn Arg Gln Pro Asn Gln Cys Thr Gln Cys Ser Cys	
133 138 143 148	
tcg gag gga aac gtg tat tgt ggt ctc aag act tgc ccc aaa tta acc	596
Ser Glu Gly Asn Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr	
149 154 159 164	
tgt gcc ttc cca gtc tct gtt cca gat tcc tgc tgc cgg gta tgc aga	644
Cys Ala Phe Pro Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg	
165 170 175 180	
gga gat gga gaa ctg tca tgg gaa cat tct gat ggt gat atc ttc cgg	692
Gly Asp Gly Glu Leu Ser Trp Glu His Ser Asp Gly Asp Ile Phe Arg	
181 186 191 196	
caa cct gcc aac aga gaa gca aga cat tct tac cac cgc tct cac tat	740
Gln Pro Ala Asn Arg Glu Ala Arg His Ser Tyr His Arg Ser His Tyr	



197	202	207	212	
gat cct cca cca agc cga cag gct gga ggt ctg tcc cgc ttt cct ggg				788
Asp Pro Pro Pro Ser Arg Gln Ala Gly Gly Leu Ser Arg Phe Pro Gly				
213	218	223	228	
gcc aga agt cac cgg gga gct ctt atg gat tcc cag caa gca tca gga				836
Ala Arg Ser His Arg Gly Ala Leu Met Asp Ser Gln Gln Ala Ser Gly				
229	234	239	244	
acc att gtg caa att gtc atc aat aac aaa cac aag cat gga caa gtg				884
Thr Ile Val Gln Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val				
245	250	255	260	
tgt gtt tcc aat gga aag acc tat tct cat ggc gag tcc tgg cac cca				932
Cys Val Ser Asn Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro				
261	266	271	276	
aac ctc cgg gca ttt ggc att gtg gag tgt gtg cta tgt act tgt aat				980
Asn Leu Arg Ala Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn				
277	282	287	292	
gtc acc aag caa gag tgt aag aaa atc cac tgc ccc aat cga tac ccc				1028
Val Thr Lys Gln Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro				
293	298	303	308	
tgc aag tat cct caa aaa ata gac gga aaa tgc tgc aag gtg tgt cca				1076
Cys Lys Tyr Pro Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro				
309	314	319	324	
ggc aaa aaa aca aaa gaa gaa ctt cca ggc caa agc ttt gac aat aaa				1124
Gly Lys Lys Thr Lys Glu Glu Leu Pro Gly Gln Ser Phe Asp Asn Lys				
325	330	335	340	
ggc tac ttc tgc ggg gaa gaa acg atg cct gtg tat gag tct gta ttc				1172
Gly Tyr Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu Ser Val Phe				
341	346	351	356	
atg gag gat ggg gag aca acc aga aaa ata gca ctg gag act gag aga				1220
Met Glu Asp Gly Glu Thr Thr Arg Lys Ile Ala Leu Glu Thr Glu Arg				
357	362	367	372	
cca cct cag gta gag gtc cac gtt tgg act att cga aag ggc att ctc				1268
Pro Pro Gln Val Glu Val His Val Trp Thr Ile Arg Lys Gly Ile Leu				
373	378	383	388	
cag cac ttc cat att gag aag atc tcc aag agg atg ttt gag gag ctt				1316
Gln His Phe His Ile Glu Lys Ile Ser Lys Arg Met Phe Glu Glu Leu				
389	394	399	404	
cct cac ttc aag ctg gtg acc aga aca acc ctg agc cag tgg aag atc				1364
Pro His Phe Lys Leu Val Thr Arg Thr Thr Leu Ser Gln Trp Lys Ile				
405	410	415	420	
ttc acc gaa gga gaa gct cag atc agc cag atg tgt tca agt cgt gta				1412
Phe Thr Glu Gly Glu Ala Gln Ile Ser Gln Met Cys Ser Ser Arg Val				
421	426	431	436	



aaccccatat gtctcattcc atgactatag gtgagagaat tctttcctaa gaggggttga	3013
taccaatagg ggaaaatgta aaatgttcag tctttatgac aacctggcat aaaggagtca	3073
attcttatga aagagacaca agggccttat ggccaggggt tcttgggaca agactctcac	3133
cagcacatca cacacgttct ccttggaaga gagaagcagt acatcccggg tgagagggtca	3193
caaagcatta gtttgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt	3253
ggtaaagggg ggaagggtgt atgcggctgc tccctccgtc ccagagggtg cagtgattcc	3313
ataatgtgga gactagtaac tagatcctaa ggcaaagagg tgtttctcct tctggatgat	3373
tcatcccaaa gccttccac ccagggtgtc tctgaaagct tagccttaag agaacacgca	3433
gagagtttcc ctagatatac tcctgcctcc aggtgctggg acacaccttt gcaaaatgct	3493
gtgggaagca ggagctgggg agctgtgtta agtcaaagta gaaaccctcc agtgtttggg	3553
gttgtgtaga gaataggaca tagggtaaag aggccaaagct gcctgtagtt agtagagaag	3613
aatggatgtg gttcttcttg tgtatttatt tgtatcataa acacttggaa caacaaagac	3673
cataagcatc atttagcagt ttagaccatt ttctagttaa ctcatgtaaa caagtaagag	3733
taacataaca gtattaccct ttcactgttc tcacaggaca tgtacctaata tatggtactt	3793
atztatgtag tcaactgtatt tctggatttt taaattaata aaaaagttaa ttttgaaaaa	3853
tca	3856

<210> 452  
 <211> 1546  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (404)..(1189)

<400> 452	
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gggtcaggaa catggaggcg gtgctgggga cggtttggtt tctaaccaca ctcttttgt	180
aaccacaaag gaaaaaggca gaacgttcct ccgctggcgc cagccaatca gcaggactcc	240
tgccttcctt cggggcaagg tcgcagcatc tgcctcgaa atcacgaaat cacggggctt	300
ctttctgctg gctcagccgg gaggcccaga gtgttctgca gaggctgcgt attgaaggct	360

gctctctgaa gctccctgcc ccaggtcacg ccgccggttc cag	atg aat cca gag	415
	Met Asn Pro Glu	
	1	
tgg ggg cag gcc ttc gtg cac gtg gcc gtg gcc ggt ggc ctc tgt gcc		463
Trp Gly Gln Ala Phe Val His Val Ala Val Ala Gly Gly Leu Cys Ala		
5 10 15 20		
gtg gct gtg ttc acg ggc att ttc gac agt gtt tcc gtg caa gtg ggc		511
Val Ala Val Phe Thr Gly Ile Phe Asp Ser Val Ser Val Gln Val Gly		
21 26 31 36		
tat gag cac tac gcc gag gcg ccc gtg gcc ggc ctc cct gcc ttc ctg		559
Tyr Glu His Tyr Ala Glu Ala Pro Val Ala Gly Leu Pro Ala Phe Leu		
37 42 47 52		
gcc atg ccg ttc aac tca ctc gtg aac atg gcc tac acg ctg ctg ggg		607
Ala Met Pro Phe Asn Ser Leu Val Asn Met Ala Tyr Thr Leu Leu Gly		
53 58 63 68		
ctg tcg tgg ctg cac agg ggc ggc gcg atg ggg ctg ggt ccc cgc tac		655
Leu Ser Trp Leu His Arg Gly Gly Ala Met Gly Leu Gly Pro Arg Tyr		
69 74 79 84		
ctg aag gac gtg ttc gca gcc atg gcc ctg ctc tat ggc ccc gtg cag		703
Leu Lys Asp Val Phe Ala Ala Met Ala Leu Leu Tyr Gly Pro Val Gln		
85 90 95 100		
tgg ctg cgc ctg tgg acg cag tgg cgc cgt gcc gcg gtg ctg gac cag		751
Trp Leu Arg Leu Trp Thr Gln Trp Arg Arg Ala Ala Val Leu Asp Gln		
101 106 111 116		
tgg ctc aca ctg ccc atc ttt gca tgg ccc gtg gcc tgg tgc ctc tac		799
Trp Leu Thr Leu Pro Ile Phe Ala Trp Pro Val Ala Trp Cys Leu Tyr		
117 122 127 132		
cta gac cgc ggc tgg cgg ccc tgg ctg ttc ctc tct ctt gag tgc gtc		847
Leu Asp Arg Gly Trp Arg Pro Trp Leu Phe Leu Ser Leu Glu Cys Val		
133 138 143 148		
tcc ctg gcc agt tat ggc ctc gct ctg ctg cat ccc cag ggc ttc gag		895
Ser Leu Ala Ser Tyr Gly Leu Ala Leu Leu His Pro Gln Gly Phe Glu		
149 154 159 164		
gtc gca ctg ggt gct cac gtg gtg gcc gct gtg ggg cag gcg ctg cgc		943
Val Ala Leu Gly Ala His Val Val Ala Ala Val Gly Gln Ala Leu Arg		
165 170 175 180		
acc cac agg cac tat ggc agc acc acc tcg gct acc tac tta gct ttg		991
Thr His Arg His Tyr Gly Ser Thr Thr Ser Ala Thr Tyr Leu Ala Leu		
181 186 191 196		
ggg gtg ctc tct tgc ctg ggc ttt gtg gtc ctc aag ctg tgt gac cat		1039
Gly Val Leu Ser Cys Leu Gly Phe Val Val Leu Lys Leu Cys Asp His		
197 202 207 212		
cag ctc gca cgg tgg cgt ctc ttc cag tgc ctc aca ggc cac ttc tgg		1087

Gln	Leu	Ala	Arg	Trp	Arg	Leu	Phe	Gln	Cys	Leu	Thr	Gly	His	Phe	Trp	
213					218					223					228	
tcc	aag	gtc	tgt	gac	gtg	ctc	cag	ttc	cac	ttt	gcg	ttt	ttg	ttt	ctg	1135
Ser	Lys	Val	Cys	Asp	Val	Leu	Gln	Phe	His	Phe	Ala	Phe	Leu	Phe	Leu	
229					234					239					244	
acg	cat	ttc	aac	act	cac	cca	aga	ttc	cat	ccc	tct	ggc	ggg	aag	acg	1183
Thr	His	Phe	Asn	Thr	His	Pro	Arg	Phe	His	Pro	Ser	Gly	Gly	Lys	Thr	
245					250					255					260	
cgt	tga	acccagggaa	gaacctgctg	aaaaccgatg	acccccagca	ttgaaatgga										1239
Arg	*															
261																
ctctgagatg	gcagcgtggt	gccagtgtca	gacatcctgt	gtgtgatgat	atgcactgat											1299
cacacaagac	tgccctttcc	tgagaagctg	cgggcttcgg	tgtggagggg	tggagtgctg											1359
tgatctcgac	aacttacttt	caaagacata	aagcacagat	ctccgcacag	gggatgtgtg											1419
tgttcctgat	gtaatttgca	taacttttct	gtagtttgaa	atgtttccaa	ataaatattg											1479
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aaaaaaa																1546

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 <222> (184)..(1014)

<400> 453																
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ggagtccttc	ccaaagttgt	ctaggtcctt	ccgcgccggg	gcctggtctt	cgtcgtcaac											180
acc	atg	gac	agc	tcc	cgg	gaa	ccg	act	ctg	ggg	cgc	ttg	gac	gcc	gct	228
Met	Asp	Ser	Ser	Arg	Glu	Pro	Thr	Leu	Gly	Arg	Leu	Asp	Ala	Ala		
1					5					10						
ggc	ttc	tgg	cag	gtc	tgg	cag	cgc	ttt	gat	gcg	gat	gaa	aaa	ggg	tac	276
Gly	Phe	Trp	Gln	Val	Trp	Gln	Arg	Phe	Asp	Ala	Asp	Glu	Lys	Gly	Tyr	
16					21					26					31	
ata	gaa	gag	aag	gaa	ctc	gat	gct	ttc	ttt	ctc	cac	atg	ttg	atg	aaa	324
Ile	Glu	Glu	Lys	Glu	Leu	Asp	Ala	Phe	Phe	Leu	His	Met	Leu	Met	Lys	
32					37					42					47	

ctg ggt act gat gac acg gtc atg aaa gca aat ttg cac aag gtg aaa	372
Leu Gly Thr Asp Asp Thr Val Met Lys Ala Asn Leu His Lys Val Lys	
48 53 58 63	
cag cag ttt atg act acc caa gat gcc tct aaa gat ggt cgc att cgg	420
Gln Gln Phe Met Thr Thr Gln Asp Ala Ser Lys Asp Gly Arg Ile Arg	
64 69 74 79	
atg aaa gag ctt gct ggt atg ttc tta tct gag gat gaa aac ttt ctt	468
Met Lys Glu Leu Ala Gly Met Phe Leu Ser Glu Asp Glu Asn Phe Leu	
80 85 90 95	
ctg ctc ttt cgc cgg gaa aac cca ctg gac agc agc gtg gag ttt atg	516
Leu Leu Phe Arg Arg Glu Asn Pro Leu Asp Ser Ser Val Glu Phe Met	
96 101 106 111	
cag att tgg cgc aaa tat gac gct gac agc agt ggc ttt ata tca gct	564
Gln Ile Trp Arg Lys Tyr Asp Ala Asp Ser Ser Gly Phe Ile Ser Ala	
112 117 122 127	
gct gag ctc cgc aac ttc ctc cga gac ctc ttt ctt cac cac aaa aag	612
Ala Glu Leu Arg Asn Phe Leu Arg Asp Leu Phe Leu His His Lys Lys	
128 133 138 143	
gcc att tct gag gct aaa ctg gaa gaa tac act ggc acc atg atg aag	660
Ala Ile Ser Glu Ala Lys Leu Glu Glu Tyr Thr Gly Thr Met Met Lys	
144 149 154 159	
att ttt gac aga aat aaa gat ggt cgg ttg gat cta aat gac tta gca	708
Ile Phe Asp Arg Asn Lys Asp Gly Arg Leu Asp Leu Asn Asp Leu Ala	
160 165 170 175	
agg att ctg gct ctt cag gaa aac ttc ctt ctc caa ttt aaa atg gat	756
Arg Ile Leu Ala Leu Gln Glu Asn Phe Leu Leu Gln Phe Lys Met Asp	
176 181 186 191	
gct tgt tct act gaa gaa agg aaa agg gac ttt gag aaa atc ttt gcc	804
Ala Cys Ser Thr Glu Glu Arg Lys Arg Asp Phe Glu Lys Ile Phe Ala	
192 197 202 207	
tac tat gat gtt agt aaa aca gga gcc ctg gaa ggc cca gaa gtg gat	852
Tyr Tyr Asp Val Ser Lys Thr Gly Ala Leu Glu Gly Pro Glu Val Asp	
208 213 218 223	
ggg ttt gtc aaa gac atg atg gag ctt gtc cag ccc agc atc agc ggg	900
Gly Phe Val Lys Asp Met Met Glu Leu Val Gln Pro Ser Ile Ser Gly	
224 229 234 239	
gtg gac ctt gat aag ttc cgc gag att ctc ctg cgt cac tgc gac gtg	948
Val Asp Leu Asp Lys Phe Arg Glu Ile Leu Leu Arg His Cys Asp Val	
240 245 250 255	
aac aag gat gga aaa att cag aag tct gag ctg gct ttg tgt ctt ggg	996
Asn Lys Asp Gly Lys Ile Gln Lys Ser Glu Leu Ala Leu Cys Leu Gly	
256 261 266 271	

ctg aaa atc aac cca taa tcccag actgctttgc cttttgctct tactatgttt 1050  
 Leu Lys Ile Asn Pro \*  
 272 277

ctgtgatctt gctggtagaa ttgtatctgt gcattgatgt tgggaacaca gtgggcaaac 1110  
 tcacaaatgg tgtgctattc ttgggcaaga agagggacgc tagggccttc cttccaccgg 1170  
 cgtgatctat ccctgtctca ctgaaagccc ctgtgtagtg tctgtgttgt tttcccttga 1230  
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 cttatgggct ttctgcttag tctgaaaggt gtgtggcatt catggcaatc ctgtaacttc 1410  
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<220>  
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 <222> (97)..(1755)

<400> 454  
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 Met Ser Arg Arg Gln Leu  
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gag aga tgg gtc tgg agc tca cag caa gtc cag gct aga ggt aga aac 162  
 Glu Arg Trp Val Trp Ser Ser Gln Gln Val Gln Ala Arg Gly Arg Asn  
 7 12 17 22

gtg aga gcc cca cgg ctg ggg aag att gcc atg gga ttg gag atg agc 210  
 Val Arg Ala Pro Arg Leu Gly Lys Ile Ala Met Gly Leu Glu Met Ser  
 23 28 33 38

tcc aag gac agc cct ggc agt ctg gat gga aga gct tgg gaa gat gct 258  
 Ser Lys Asp Ser Pro Gly Ser Leu Asp Gly Arg Ala Trp Glu Asp Ala  
 39 44 49 54

cag aaa cca caa agt gcc tgg tgc ggt ggg agg aaa acc aga gtg tat 306  
 Gln Lys Pro Gln Ser Ala Trp Cys Gly Gly Arg Lys Thr Arg Val Tyr  
 55 60 65 70

gct aca agc agc cgg cgg gcg ccg ccg agt gag ggg acg cgg cgc ggt 354  
 Ala Thr Ser Ser Arg Arg Ala Pro Pro Ser Glu Gly Thr Arg Arg Gly  
 71 76 81 86

ggg gcg gcg cgg ccc gag gag gcg gcg gag gag ggg ccg ccc gcg gcc	402
Gly Ala Ala Arg Pro Glu Glu Ala Ala Glu Glu Gly Pro Pro Ala Ala	
87 92 97 102	
ccc ggc tca ctc cgg cac tcc ggg ccg ctc ggc ccc cat gcc tgc ccg	450
Pro Gly Ser Leu Arg His Ser Gly Pro Leu Gly Pro His Ala Cys Pro	
103 108 113 118	
acc gcg ctg ccg gag ccc cag gtg acc agc gcc atg tcc agc cag gtg	498
Thr Ala Leu Pro Glu Pro Gln Val Thr Ser Ala Met Ser Ser Gln Val	
119 124 129 134	
gtg ggc att gag cct ctc tac atc aag gca gag ccg gcc agc cct gac	546
Val Gly Ile Glu Pro Leu Tyr Ile Lys Ala Glu Pro <sup>3</sup> Ala Ser Pro Asp	
135 140 145 150	
agt cca aag ggt tcc tcg gag aca gag acc gag cct cct gtg gcc ctg	594
Ser Pro Lys Gly Ser Ser Glu Thr Glu Thr Glu Pro Pro Val Ala Leu	
151 156 161 166	
gcc cct ggt cca gct ccc act cgc tgc ctc cca ggc cac aag gaa gag	642
Ala Pro Gly Pro Ala Pro Thr Arg Cys Leu Pro Gly His Lys Glu Glu	
167 172 177 182	
gag gat ggg gag ggg gct ggg cct ggc gag cag ggc ggt ggg aag ctg	690
Glu Asp Gly Glu Gly Ala Gly Pro Gly Glu Gln Gly Gly Gly Lys Leu	
183 188 193 198	
gtg ctc agc tcc ctg ccc aag cgc ctc tgc ctg gtc tgt ggg gac gtg	738
Val Leu Ser Ser Leu Pro Lys Arg Leu Cys Leu Val Cys Gly Asp Val	
199 204 209 214	
gcc tcc ggc tac cac tat ggt gtg gca tcc tgt gag gcc tgc aaa gcc	786
Ala Ser Gly Tyr His Tyr Gly Val Ala Ser Cys Glu Ala Cys Lys Ala	
215 220 225 230	
ttc ttc aag agg acc atc cag ggg agc atc gag tac agc tgt ccg gcc	834
Phe Phe Lys Arg Thr Ile Gln Gly Ser Ile Glu Tyr Ser Cys Pro Ala	
231 236 241 246	
tcc aac gag tgt gag atc acc aag cgg aga cgc aag gcc tgc cag gcc	882
Ser Asn Glu Cys Glu Ile Thr Lys Arg Arg Arg Lys Ala Cys Gln Ala	
247 252 257 262	
tgc cgc ttc acc aag tgc ctg cgg gtg ggc atg ctc aag gag gga gtg	930
Cys Arg Phe Thr Lys Cys Leu Arg Val Gly Met Leu Lys Glu Gly Val	
263 268 273 278	
cgc ctg gac cgc gtc cgg ggt ggg cgg cag aag tac aag cgg cgg ccg	978
Arg Leu Asp Arg Val Arg Gly Gly Arg Gln Lys Tyr Lys Arg Arg Pro	
279 284 289 294	
gag gtg gac cca ctg ccc ttc ccg ggc ccc ttc cct gct ggg ccc ctg	1026
Glu Val Asp Pro Leu Pro Phe Pro Gly Pro Phe Pro Ala Gly Pro Leu	
295 300 305 310	
gca gtc gct gga ggc ccc cgg aag aca gca gcc cca gtg aat gca ctg	1074



Ala Val Ala Gly Gly Pro Arg Lys Thr Ala Ala Pro Val Asn Ala Leu	
311 316 321 326	
gtg tct cat ctg ctg gtg gtt gag cct gag aag ctc tat gcc atg cct	1122
Val Ser His Leu Leu Val Val Glu Pro Glu Lys Leu Tyr Ala Met Pro	
327 332 337 342	
gac ccc gca ggc cct gat ggg cac ctc cca gcc gtg gct acc ctc tgt	1170
Asp Pro Ala Gly Pro Asp Gly His Leu Pro Ala Val Ala Thr Leu Cys	
343 348 353 358	
gac ctc ttt gac cga gag att gtg gtc acc atc agc tgg gcc aag agc	1218
Asp Leu Phe Asp Arg Glu Ile Val Val Thr Ile Ser Trp Ala Lys Ser	
359 364 369 374	
atc cca ggc ttc tca tcg ctg tcg ctg tct gac cag atg tca gta ctg	1266
Ile Pro Gly Phe Ser Ser Leu Ser Leu Ser Asp Gln Met Ser Val Leu	
375 380 385 390	
cag agc gtg tgg atg gag gtg ctg gtg ctg ggt gtg gcc cag cgc tca	1314
Gln Ser Val Trp Met Glu Val Leu Val Leu Gly Val Ala Gln Arg Ser	
391 396 401 406	
ctg cca ctg cag gat gag ctg gcc ttc gct gag gac tta gtc ctg gat	1362
Leu Pro Leu Gln Asp Glu Leu Ala Phe Ala Glu Asp Leu Val Leu Asp	
407 412 417 422	
gaa gag ggg gca cgg gca gct ggc ctg ggg gaa ctg ggg gct gcc ctg	1410
Glu Glu Gly Ala Arg Ala Ala Gly Leu Gly Glu Leu Gly Ala Ala Leu	
423 428 433 438	
ctg caa cta gtg cgg cgg ctg cag gcc ctg cgg ctg gag cga gag gag	1458
Leu Gln Leu Val Arg Arg Leu Gln Ala Leu Arg Leu Glu Arg Glu Glu	
439 444 449 454	
tat gtt cta cta aag gcc ttg gcc ctt gcc aat tca gac tct gtg cac	1506
Tyr Val Leu Leu Lys Ala Leu Ala Leu Ala Asn Ser Asp Ser Val His	
455 460 465 470	
atc gaa gat gcc gag gct gtg gag cag ctg cga gaa gct ctg cac gag	1554
Ile Glu Asp Ala Glu Ala Val Glu Gln Leu Arg Glu Ala Leu His Glu	
471 476 481 486	
gcc ctg ctg gag tat gaa gcc ggc cgg gct ggc ccc gga ggg ggt gct	1602
Ala Leu Leu Glu Tyr Glu Ala Gly Arg Ala Gly Pro Gly Gly Gly Ala	
487 492 497 502	
gag cgg cgg cgg gcg ggc agg ctg ctg ctc acg cta ccg ctc ctc cgc	1650
Glu Arg Arg Arg Ala Gly Arg Leu Leu Leu Thr Leu Pro Leu Leu Arg	
503 508 513 518	
cag aca gcg ggc aaa gtg ctg gcc cat ttc tat ggg gtg aag ctg gag	1698
Gln Thr Ala Gly Lys Val Leu Ala His Phe Tyr Gly Val Lys Leu Glu	
519 524 529 534	
ggc aag gtg ccc atg cac aag ctg ttc ttg gag atg ctc gag gcc atg	1746
Gly Lys Val Pro Met His Lys Leu Phe Leu Glu Met Leu Glu Ala Met	

535	540	545	550	
atg gac tga ggcaagg ggtgggactg gtgggggttc tggcaggacc tgcctagcat				1802
Met Asp *				
551				
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agggccaggg caatgccatc agcccctggg aacaggcccc acgccctctc ctccccctcc				1922
tagggggtgt cagaagctgg gaacgtgtgt ccaggctctg ggcacagtgc tgccccttgc				1982
aagccataac gtgccccag agtgtagggg gccttgcgga agccataggg ggctgcacgg				2042
gatgcgtggg aggcagaaac ctatctcagg gagggaaggg gatggaggcc agagtctccc				2102
agtgggtgat gcttttgctg ctgcttaatc ctaccccctc ttcaaagcag agtgggactt				2162
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gtccccctt gaagcaataa ctccaagcag actccagccc ctggaccctt ggggtggcca				2282
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ccctgcagag caataacact atatttattt ttgggtttgg ccagggaggc gcagggacat				2402
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ccctcgcccc cctgagttag tccgggtctcc cggcgaaagt gagcgagggt tgcccggagc	180
gcgcacgagg ggaaa atg cct aaa aaa aag act ggt gcg agg aag aag gct	231
Met Pro Lys Lys Lys Thr Gly Ala Arg Lys Lys Ala	
1 5 10	
gag aac cgc cga gaa cgt gaa aaa caa cta aga gca tca aga agc act	279
Glu Asn Arg Arg Glu Arg Glu Lys Gln Leu Arg Ala Ser Arg Ser Thr	

13	18	23	28	
ata gat tta gct aaa cat cca tgt aat gcc tca atg gaa tgt gac aag				327
Ile Asp Leu Ala Lys His Pro Cys Asn Ala Ser Met Glu Cys Asp Lys				
29	34	39	44	
tgt cag agg cgg cag aag aat aga gca ttt tgc tac ttt tgt aat tct				375
Cys Gln Arg Arg Gln Lys Asn Arg Ala Phe Cys Tyr Phe Cys Asn Ser				
45	50	55	60	
gta cag aag tta cca att tgt gca cag tgt ggg aaa aca aag tgc atg				423
Val Gln Lys Leu Pro Ile Cys Ala Gln Cys Gly Lys Thr Lys Cys Met				
61	66	71	76	
atg aag tct tca gac tgt gtc ata aag cat gct ggt gta tac agt act				471
Met Lys Ser Ser Asp Cys Val Ile Lys His Ala Gly Val Tyr Ser Thr				
77	82	87	92	
ggc ctt gca atg gtg ggt gca ata tgt gac ttc tgt gaa gct tgg gtt				519
Gly Leu Ala Met Val Gly Ala Ile Cys Asp Phe Cys Glu Ala Trp Val				
93	98	103	108	
tgc cat ggg agg aag tgt ctc agt aca cat gcc tgt gcc tgc cct ctc				567
Cys His Gly Arg Lys Cys Leu Ser Thr His Ala Cys Ala Cys Pro Leu				
109	114	119	124	
act gat gct gag tgt gtt gaa tgt gaa cga ggc gtg tgg gac cat gga				615
Thr Asp Ala Glu Cys Val Glu Cys Glu Arg Gly Val Trp Asp His Gly				
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ggc aga ata ttc agt tgt tct ttt tgc cat aac ttt ctc tgt gaa gat				663
Gly Arg Ile Phe Ser Cys Ser Phe Cys His Asn Phe Leu Cys Glu Asp				
141	146	151	156	
gat caa ttt gag cat caa gcc agc tgc cag gtt tta gag gca gaa aca				711
Asp Gln Phe Glu His Gln Ala Ser Cys Gln Val Leu Glu Ala Glu Thr				
157	162	167	172	
ttt aaa tgt gtt tca tgc aat cgg ctt ggt cag cac tca tgt ctc cgt				759
Phe Lys Cys Val Ser Cys Asn Arg Leu Gly Gln His Ser Cys Leu Arg				
173	178	183	188	
tgt aag gct tgt ttc tgt gat gat cat aca agg agc aaa gtg ttt aag				807
Cys Lys Ala Cys Phe Cys Asp Asp His Thr Arg Ser Lys Val Phe Lys				
189	194	199	204	
caa gaa aaa gga aaa cag cct cct tgt cct aaa tgt ggg cat gaa act				855
Gln Glu Lys Gly Lys Gln Pro Pro Cys Pro Lys Cys Gly His Glu Thr				
205	210	215	220	
cag gag act aag gac ctt agc atg tca aca cgc tcc ctg aaa ttt ggc				903
Gln Glu Thr Lys Asp Leu Ser Met Ser Thr Arg Ser Leu Lys Phe Gly				
221	226	231	236	
agg cag act gga ggt gaa gag gga gat gga gct tct ggg tat gat gct				951
Arg Gln Thr Gly Gly Glu Glu Gly Asp Gly Ala Ser Gly Tyr Asp Ala				
237	242	247	252	

tat tgg aag aac ctt tca tct gat aag tat ggt gat acc agc tac cac	999
Tyr Trp Lys Asn Leu Ser Ser Asp Lys Tyr Gly Asp Thr Ser Tyr His	
253 258 263 268	
gat gag gag gag gat gag tat gaa gca gag gat gat gaa gag gaa gaa	1047
Asp Glu Glu Glu Asp Glu Tyr Glu Ala Glu Asp Asp Glu Glu Glu Glu	
269 274 279 284	
gat gaa ggc aga aag gat tca gat act gag tca tca gat ttg ttt act	1095
Asp Glu Gly Arg Lys Asp Ser Asp Thr Glu Ser Ser Asp Leu Phe Thr	
285 290 295 300	
aat ttg aat tta gga agg acc tat gct agt ggc tat gct cac tat gag	1143
Asn Leu Asn Leu Gly Arg Thr Tyr Ala Ser Gly Tyr Ala His Tyr Glu	
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gaa caa gag aac tag gggagctgct ctggtggccg tgtgtgagag gagcaggagt	1198
Glu Gln Glu Asn *	
317	
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Gly Ser Gly Gly Val Gly Lys Ser Ala Leu Thr Val Gln Phe Val Thr		
10 15 20 25		
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Gly Thr Phe Ile Glu Lys Tyr Asp Pro Thr Ile Glu Asp Phe Tyr Arg		
26 31 36 41		
aag gag atc gag gtg gat tcg tcg ccg tcg gtg ctg gag atc ctg gac		195
Lys Glu Ile Glu Val Asp Ser Ser Pro Ser Val Leu Glu Ile Leu Asp		
42 47 52 57		
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Thr Ala Gly Thr Glu Gln Phe Ala Ser Met Arg Asp Leu Tyr Ile Lys		
58 63 68 73		
aac ggc cag ggc ttc atc ctc gtc tac agc ctc gtc aac cag cag agc		291
Asn Gly Gln Gly Phe Ile Leu Val Tyr Ser Leu Val Asn Gln Gln Ser		
74 79 84 89		
ttc cag gac atc aag ccc atg cgg gac cag atc atc cgc gtg aag cgg		339
Phe Gln Asp Ile Lys Pro Met Arg Asp Gln Ile Ile Arg Val Lys Arg		
90 95 100 105		
tat gag aaa gtg cca gtc atc ttg gtt ggg aac aaa gtg gac ctg gaa		387
Tyr Glu Lys Val Pro Val Ile Leu Val Gly Asn Lys Val Asp Leu Glu		
106 111 116 121		
agt gag aga gaa gta tcg tcc agc gaa ggc aga gcc ctt gct gaa gag		435
Ser Glu Arg Glu Val Ser Ser Ser Glu Gly Arg Ala Leu Ala Glu Glu		
122 127 132 137		
tgg ggc tgc ccc ttt atg gaa act tcc gct aag agt aaa aca atg gtg		483
Trp Gly Cys Pro Phe Met Glu Thr Ser Ala Lys Ser Lys Thr Met Val		
138 143 148 153		
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Asp Glu Leu Phe Ala Glu Ile Val Arg Gln Met Asn Tyr Ala Ala Gln		
154 159 164 169		
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Pro Asp Lys Asp Asp Pro Cys Cys Ser Ala Cys Asn Ile Gln *		
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<213> Homo sapiens

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<222> (177)..(1835)

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acctgtgcgt ccctccgtcc cgtcccgtcc cggggtcacc ccggagcctg tccgct 176
atg cgg ctc ctg cct cta gcc cca ggt cgg ctc cgg cgg ggc agc ccc 224
Met Arg Leu Leu Pro Leu Ala Pro Gly Arg Leu Arg Arg Gly Ser Pro
1 5 10 15
cgc cac ctg ccc tcc tgc agc cca gcg ctg cta ctg ctg gtg ctg ggc 272
Arg His Leu Pro Ser Cys Ser Pro Ala Leu Leu Leu Leu Val Leu Gly
17 22 27 32
ggc tgc ctg ggg gtc ttc ggg gtg gct gcg gga acc cgg agg ccc aac 320
Gly Cys Leu Gly Val Phe Gly Val Ala Ala Gly Thr Arg Arg Pro Asn
33 38 43 48

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gtg gtg ctg ctc ctc acg gac gac cag gac gaa gtg ctc ggc ggc atg Val Val Leu Leu Leu Thr Asp Asp Gln Asp Glu Val Leu Gly Gly Met 49 54 59 64	368
aca cca cta aag aaa acc aaa gct ctc atc gga gag atg ggg atg act Thr Pro Leu Lys Lys Thr Lys Ala Leu Ile Gly Glu Met Gly Met Thr 65 70 75 80	416
ttt tcc agt gct tat gtg cca agt gct ctc tgc tgc ccc agc aga gcc Phe Ser Ser Ala Tyr Val Pro Ser Ala Leu Cys Cys Pro Ser Arg Ala 81 86 91 96	464
agt atc ctg aca gga aag tac cca cat aat cat cac gtt gtg aac aac Ser Ile Leu Thr Gly Lys Tyr Pro His Asn His His Val Val Asn Asn 97 102 107 112	512
act ctg gag ggg aac tgc agt agt aag tcc tgg cag aag atc caa gaa Thr Leu Glu Gly Asn Cys Ser Ser Lys Ser Trp Gln Lys Ile Gln Glu 113 118 123 128	560
cca aat act ttc cca gca att ctc aga tca atg tgt ggt tat cag acc Pro Asn Thr Phe Pro Ala Ile Leu Arg Ser Met Cys Gly Tyr Gln Thr 129 134 139 144	608
ttt ttt gca ggg aaa tat tta aat gag tac gga gcc cca gat gca ggt Phe Phe Ala Gly Lys Tyr Leu Asn Glu Tyr Gly Ala Pro Asp Ala Gly 145 150 155 160	656
gga cta gaa cac gtt cct ctg ggt tgg agt tac tgg tat gcc ttg gaa Gly Leu Glu His Val Pro Leu Gly Trp Ser Tyr Trp Tyr Ala Leu Glu 161 166 171 176	704
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cgg aag cat ggt gaa aac tat agt gtg gac tac ctg aca gat gtt ttg Arg Lys His Gly Glu Asn Tyr Ser Val Asp Tyr Leu Thr Asp Val Leu 193 198 203 208	800
gct aat gtc tcc ttg gac ttt ctg gac tac aag tcc aac ttt gag ccc Ala Asn Val Ser Leu Asp Phe Leu Asp Tyr Lys Ser Asn Phe Glu Pro 209 214 219 224	848
ttc ttc atg atg atc gcc act cca gcg cct cat tgc cct tgg aca gct Phe Phe Met Met Ile Ala Thr Pro Ala Pro His Ser Pro Trp Thr Ala 225 230 235 240	896
gca cct cag tac cag aag gct ttc cag aat gtc ttt gca cca aga aac Ala Pro Gln Tyr Gln Lys Ala Phe Gln Asn Val Phe Ala Pro Arg Asn 241 246 251 256	944
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gcc aag act cca atg act aat tct tca ata cag ttt tta gat aat gca	1040



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Phe Arg Lys Arg Trp Gln Thr Leu Leu Ser Val Asp Asp Leu Val Glu	
289 294 299 304	
aaa ctg gtc aag agg ctg gag ttc act ggg gag ctc aac aac act tac	1136
Lys Leu Val Lys Arg Leu Glu Phe Thr Gly Glu Leu Asn Asn Thr Tyr	
305 310 315 320	
atc ttc tat acc tca gac aat ggc tat cac aca gga cag ttt tcc ttg	1184
Ile Phe Tyr Thr Ser Asp Asn Gly Tyr His Thr Gly Gln Phe Ser Leu	
321 326 331 336	
cca ata gac aag aga cag ctg tat gag ttt gat atc aaa gtt cca ctg	1232
Pro Ile Asp Lys Arg Gln Leu Tyr Glu Phe Asp Ile Lys Val Pro Leu	
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Leu Val Arg Gly Pro Gly Ile Lys Pro Asn Gln Thr Ser Lys Met Leu	
353 358 363 368	
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Val Ala Asn Ile Asp Leu Gly Pro Thr Ile Leu Asp Ile Ala Gly Tyr	
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Asp Leu Asn Lys Thr Gln Met Asp Gly Met Ser Leu Leu Pro Ile Leu	
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Arg Gly Ala Ser Asn Leu Thr Trp Arg Ser Asp Val Leu Val Glu Tyr	
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Pro Gly Val Ser Gln Cys Phe Pro Asp Cys Val Cys Glu Asp Ala Tyr	
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Asn Asn Thr Tyr Ala Cys Val Arg Thr Met Ser Ala Leu Trp Asn Leu	
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Gln Tyr Cys Glu Phe Asp Asp Gln Glu Val Phe Val Glu Val Tyr Asn	
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Leu Thr Ala Asp Pro Asp Gln Ile Thr Asn Ile Ala Lys Thr Ile Asp	
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Pro Glu Leu Leu Gly Lys Met Asn Tyr Arg Leu Met Met Leu Gln Ser	

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Cys Ser Gly Pro Thr	Cys Arg Thr Pro Gly Val Phe Asp Pro Gly Tyr			
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Arg Phe Asp Pro Arg	Leu Met Phe Ser Asn Arg Gly Ser Val Arg Thr			
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Arg Arg Phe Ser Lys His Leu Leu *				
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tgggttcttc ctgagttttg gagtcttgta tgattatcag tattccccctg tcaaaatcaa				3000
atctattcag gtttcttcac tgttgagaac acctaaatgt ttttattttt gagaagtggg				3060
gacagagtct cactatgtca cccaggctgg agtgcaatgg catgatctca gctcactgca				3120
accttcgcct cctgggttca agcgattctc ctgcctccgc ctctgagta gctgggatta				3180

taggcacaca ccaccacgcc cagctaattt tttgtatttt tagtagagac agagtttcac	3240
catgttggcc aggctggctc tgaactcctg accttgtgat ccaccacct cggcctccca	3300
gagtgtggg attacaggca tgagccacca cgcttggcta agaacaccta aatttttatg	3360
tttcttggct caaaaaccag ttccatttct aatgttgtcc tcacaagaag gctaattggc	3420
ggtgagacag caggggagga ggaagagctg tggtttgtaa cttgttcaac tcaggcaata	3480
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aagtgagcag cggggctcct gcctcccggc ctgggtcccg aagacccag aagaaccgg	180
aacttgcttc cattcggaat ccagggacca ccctttgcac tcagtaggcc tttgttttcc	240
tgogtgga aa gcggttgggc ttgggagggc	291
atg gag ccg gag ttc ttg tac	
Met Glu Pro Glu Phe Leu Tyr	
1 5	
gac ctg ctg cag ctc ccc aag ggg gtg gag ccc cca gcg gag gag gag	339
Asp Leu Leu Gln Leu Pro Lys Gly Val Glu Pro Pro Ala Glu Glu Glu	
8 13 18 23	
ctc tca aaa gga gga aag aag aaa tac ctg cca ccc act tcc cgg aag	387
Leu Ser Lys Gly Gly Lys Lys Lys Tyr Leu Pro Pro Thr Ser Arg Lys	
24 29 34 39	
gac ccc aaa ttt gaa gaa ctg cag aag ctg cag gtg ttg atg gag tgg	435
Asp Pro Lys Phe Glu Glu Leu Gln Lys Leu Gln Val Leu Met Glu Trp	
40 45 50 55	
atc aat/gcc act ctt ctc ccc gag cac att gtg gtc cgc agc ctg gag	483
Ile Asn Ala Thr Leu Leu Pro Glu His Ile Val Val Arg Ser Leu Glu	
56 61 66 71	
gag gac atg ttc gac ggg ctc atc cta cac cac cta ttc cag agg ctg	531



296

tggtctgcaa gcacacgcag aaggcacaca gggacaggac gcccctatgga gcccgaatt 1271  
gaccctcact gcctccaaag cccagagcct gcctgtcagc ccagctggag ggcccgaggc 1331  
tgcaggggtgt cctcccacag tcccgctgtt tcctgtgcat tcgtgacccg cttccctccc 1391  
accctgtctc ctgtctccat cgttggatta tctttgaacc cccttgtgtg gatcattttg 1451  
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aaaaaaaaa 1520

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<212> DNA  
<213> Homo sapiens

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<400> 459

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Met Ala Asp Thr Asp Leu Phe Met Glu Cys Glu Glu Glu Glu Leu Glu  
1 5 10 15  
cca tgg cag aaa atc agt gat gtc att gag gac tct gta gtt gaa gat 154  
Pro Trp Gln Lys Ile Ser Asp Val Ile Glu Asp Ser Val Val Glu Asp  
17 22 27 32  
tat aat tca gtg gat aaa act acc aca gct ggc aat cct ttg gtc cag 202  
Tyr Asn Ser Val Asp Lys Thr Thr Thr Ala Gly Asn Pro Leu Val Gln  
33 38 43 48  
caa ggt gga cag cca ctc atc ctg acc cag aat cca gcc cca ggt ctg 250  
Gln Gly Gly Gln Pro Leu Ile Leu Thr Gln Asn Pro Ala Pro Gly Leu  
49 54 59 64  
ggc aca atg gtt act caa cca gta ttg agg cct gtt cag gtc atg cag 298  
Gly Thr Met Val Thr Gln Pro Val Leu Arg Pro Val Gln Val Met Gln  
65 70 75 80  
aat gcc aat cat gtg act agt tcc cct gtg gcc tca caa cca ata ttt 346  
Asn Ala Asn His Val Thr Ser Ser Pro Val Ala Ser Gln Pro Ile Phe  
81 86 91 96  
atc act acg cag gga ttt cct gta agg aat gtc cgg cct gta caa aat 394  
Ile Thr Thr Gln Gly Phe Pro Val Arg Asn Val Arg Pro Val Gln Asn  
97 102 107 112  
gca atg aat cag gtt ggg att gtg ctg aac gta cag caa ggc caa acg 442

Ala Met Asn Gln Val Gly Ile Val Leu Asn Val Gln Gln Gly Gln Thr	
113 118 123 128	
gtt aga cca att aca cta gtt cca gcc cca ggt acc cag ttt gtt aag	490
Val Arg Pro Ile Thr Leu Val Pro Ala Pro Gly Thr Gln Phe Val Lys	
129 134 139 144	
ccg aca gtt gga gtt cca caa gtg ttc tcc cag atg acc cct gtg agg	538
Pro Thr Val Gly Val Pro Gln Val Phe Ser Gln Met Thr Pro Val Arg	
145 150 155 160	
cca ggc tcc aca atg cct gtg agg ccc acc acc aac acc ttc acc acc	586
Pro Gly Ser Thr Met Pro Val Arg Pro Thr Thr Asn Thr Phe Thr Thr	
161 166 171 176	
gtc atc ccg gcc act ctt acc att cga agc acc gtc cca cag tcc cag	634
Val Ile Pro Ala Thr Leu Thr Ile Arg Ser Thr Val Pro Gln Ser Gln	
177 182 187 192	
tcc cag cag acc aag tcc act ccc agc act tct acc act ccc act gcc	682
Ser Gln Gln Thr Lys Ser Thr Pro Ser Thr Ser Thr Thr Pro Thr Ala	
193 198 203 208	
aca cag cca acc tca ctg ggg caa cta gct gtt cag tct cca ggc cag	730
Thr Gln Pro Thr Ser Leu Gly Gln Leu Ala Val Gln Ser Pro Gly Gln	
209 214 219 224	
tca aac cag acc acg aat ccc aag cta gct ccc tcc ttc ccc tct cca	778
Ser Asn Gln Thr Thr Asn Pro Lys Leu Ala Pro Ser Phe Pro Ser Pro	
225 230 235 240	
cct gca gtg agc att gcc agc ttt gtc act gtg aag cga cct ggt gtt	826
Pro Ala Val Ser Ile Ala Ser Phe Val Thr Val Lys Arg Pro Gly Val	
241 246 251 256	
aca ggc gaa aat agc aat gaa gtg gcc aaa ttg gtg aat acc ctt aac	874
Thr Gly Glu Asn Ser Asn Glu Val Ala Lys Leu Val Asn Thr Leu Asn	
257 262 267 272	
acc atc cct tcc ctg ggc cag agt cct ggg cca gtg gtg gtg tcc aac	922
Thr Ile Pro Ser Leu Gly Gln Ser Pro Gly Pro Val Val Val Ser Asn	
273 278 283 288	
aac agc tct gct cat ggc tct caa aga acc agc gga cct gag tct tca	970
Asn Ser Ser Ala His Gly Ser Gln Arg Thr Ser Gly Pro Glu Ser Ser	
289 294 299 304	
atg aaa gtg acc tct tcc atc cca gta ttt gac ctc cag gat ggt gga	1018
Met Lys Val Thr Ser Ser Ile Pro Val Phe Asp Leu Gln Asp Gly Gly	
305 310 315 320	
cgg aaa ata tgt cca cga tgt aat gct caa ttt cgt gtt act gaa gct	1066
Arg Lys Ile Cys Pro Arg Cys Asn Ala Gln Phe Arg Val Thr Glu Ala	
321 326 331 336	
ttg aga ggt cac atg tgt tac tgt tgc cca gaa atg gtt gaa tac cag	1114
Leu Arg Gly His Met Cys Tyr Cys Cys Pro Glu Met Val Glu Tyr Gln	

337	342	347	352	
aag aaa gga aag tcc ctg gat tca gaa ccc agt gtc cca tca gca gca				1162
Lys Lys Gly Lys Ser Leu Asp Ser Glu Pro Ser Val Pro Ser Ala Ala				
353	358	363	368	
aag ccc cca tcc cct gag aaa aca gct cct gtt gct tcc aca ccc tct				1210
Lys Pro Pro Ser Pro Glu Lys Thr Ala Pro Val Ala Ser Thr Pro Ser				
369	374	379	384	
tct aca cct att cct gct ctg tca ccg cct acc aaa gta cca gaa cca				1258
Ser Thr Pro Ile Pro Ala Leu Ser Pro Pro Thr Lys Val Pro Glu Pro				
385	390	395	400	
aat gag aac gtg ggc gat gcc gtc cag acc aaa ctc att atg ctt gta				1306
Asn Glu Asn Val Gly Asp Ala Val Gln Thr Lys Leu Ile Met Leu Val				
401	406	411	416	
gat gac ttc tac tat gga cgg gat ggt ggc aaa gta gcc cag ctc aca				1354
Asp Asp Phe Tyr Tyr Gly Arg Asp Gly Gly Lys Val Ala Gln Leu Thr				
417	422	427	432	
aat ttc cct aag gtc gcc aca tct ttc cga tgc cca cat tgt acc aaa				1402
Asn Phe Pro Lys Val Ala Thr Ser Phe Arg Cys Pro His Cys Thr Lys				
433	438	443	448	
agg cta aaa aac aat att cga ttc atg aac cat atg aaa cac cac gta				1450
Arg Leu Lys Asn Asn Ile Arg Phe Met Asn His Met Lys His His Val				
449	454	459	464	
gaa ctc gat cag cag aac ggt gag gta gat ggt cac act atc tgc cag				1498
Glu Leu Asp Gln Gln Asn Gly Glu Val Asp Gly His Thr Ile Cys Gln				
465	470	475	480	
cac tgt tac cgc cag ttt tcc act ccc ttc cag ctt cag tgc cac ttg				1546
His Cys Tyr Arg Gln Phe Ser Thr Pro Phe Gln Leu Gln Cys His Leu				
481	486	491	496	
gaa aat gtt cat agt ccc tat gaa tct act acc aag tgc aag atc tgt				1594
Glu Asn Val His Ser Pro Tyr Glu Ser Thr Thr Lys Cys Lys Ile Cys				
497	502	507	512	
gaa tgg gcg ttt gaa agt gag cca cta ttt ctc cag cat atg aag gat				1642
Glu Trp Ala Phe Glu Ser Glu Pro Leu Phe Leu Gln His Met Lys Asp				
513	518	523	528	
act cat aag cct gga gag atg cct tat gtt tgc cag gtg tgt caa tat				1690
Thr His Lys Pro Gly Glu Met Pro Tyr Val Cys Gln Val Cys Gln Tyr				
529	534	539	544	
cgc tcc tca ctc tac tct gag gta gat gtc cat ttt cgg atg atc cat				1738
Arg Ser Ser Leu Tyr Ser Glu Val Asp Val His Phe Arg Met Ile His				
545	550	555	560	
gag gat acc cgg cat ctg ctc tgc cct tat tgc ctg aag gtc ttc aaa				1786
Glu Asp Thr Arg His Leu Leu Cys Pro Tyr Cys Leu Lys Val Phe Lys				
561	566	571	576	

aat ggc aat gca ttc caa cag cat tac atg agg cac cag aag aga aat	1834
Asn Gly Asn Ala Phe Gln Gln His Tyr Met Arg His Gln Lys Arg Asn	
577 582 587 592	
ggt tat cac tgc aac aaa tgc cgg ctg cag ttt ctc ttt gcc aag gac	1882
Val Tyr His Cys Asn Lys Cys Arg Leu Gln Phe Leu Phe Ala Lys Asp	
593 598 603 608	
aaa att gaa cac aag ctt caa cac cat aaa acc ttc cgt aaa ccc aag	1930
Lys Ile Glu His Lys Leu Gln His His Lys Thr Phe Arg Lys Pro Lys	
609 614 619 624	
cag ctg gag ggc ttg aaa cca ggc acc aag gtg aca <sup>u</sup> atc cgg gct tcc	1978
Gln Leu Glu Gly Leu Lys Pro Gly Thr Lys Val Thr Ile Arg Ala Ser	
625 630 635 640	
cga ggg cag cca cga act gtt cct gta tcc tct aat gat aca cct ccc	2026
Arg Gly Gln Pro Arg Thr Val Pro Val Ser Ser Asn Asp Thr Pro Pro	
641 646 651 656	
agc gcc ttg cag gag gca gca ccg ctg acc tcc tca atg gac cct ctg	2074
Ser Ala Leu Gln Glu Ala Ala Pro Leu Thr Ser Ser Met Asp Pro Leu	
657 662 667 672	
cct gtc ttc ctt tat ccc cct gtc cag cgc agc atc cag aag aga gct	2122
Pro Val Phe Leu Tyr Pro Pro Val Gln Arg Ser Ile Gln Lys Arg Ala	
673 678 683 688	
ggt agg aaa atg agt gtc atg ggc cgg cag aca tgc ctg gag tgc agc	2170
Val Arg Lys Met Ser Val Met Gly Arg Gln Thr Cys Leu Glu Cys Ser	
689 694 699 704	
ttc gag atc cca gac ttc cct aat cat ttc cct act tac gta cac tgc	2218
Phe Glu Ile Pro Asp Phe Pro Asn His Phe Pro Thr Tyr Val His Cys	
705 710 715 720	
tct ctg tgt cgc tat agc acc tgc tgt tct cga gct tat gcc aac cac	2266
Ser Leu Cys Arg Tyr Ser Thr Cys Cys Ser Arg Ala Tyr Ala Asn His	
721 726 731 736	
atg atc aac aat cat gtt cca cgg aag agc ccc aag tat ttg gct ttg	2314
Met Ile Asn Asn His Val Pro Arg Lys Ser Pro Lys Tyr Leu Ala Leu	
737 742 747 752	
ttt aaa aat tct gtg agt gga atc aag ctg gcc tgc act tca tgt acc	2362
Phe Lys Asn Ser Val Ser Gly Ile Lys Leu Ala Cys Thr Ser Cys Thr	
753 758 763 768	
ttt gtt acc tct gtg ggc gat gct atg gcc aag cat ttg gta ttc aac	2410
Phe Val Thr Ser Val Gly Asp Ala Met Ala Lys His Leu Val Phe Asn	
769 774 779 784	
ccc tct cac aga tcc agc agc atc ctg cca cgg gga ctc act tgg ata	2458
Pro Ser His Arg Ser Ser Ser Ile Leu Pro Arg Gly Leu Thr Trp Ile	
785 790 795 800	



gct cac tca agg cat ggc cag act cgt gac cga gtg cat gac cgg aac	2506
Ala His Ser Arg His Gly Gln Thr Arg Asp Arg Val His Asp Arg Asn	
801 806 811 816	
gtg aag aat atg tac cct cct cct tcc ttc ccc act aac aaa gct gcc	2554
Val Lys Asn Met Tyr Pro Pro Pro Ser Phe Pro Thr Asn Lys Ala Ala	
817 822 827 832	
act gtg aaa tct gcg ggg gcc acc cca gct gag cct gaa gag cta cta	2602
Thr Val Lys Ser Ala Gly Ala Thr Pro Ala Glu Pro Glu Glu Leu Leu	
833 838 843 848	
act ccc tta gcc cca gca ctc cca tca cca gcc tca act gca acc cca	2650
Thr Pro Leu Ala Pro Ala Leu Pro Ser Pro Ala Ser Thr Ala Thr Pro	
849 854 859 864	
cca cca acc ccc act cac ccg cag gct tta gcc ctt cca ccg ctg gct	2698
Pro Pro Thr Pro Thr His Pro Gln Ala Leu Ala Leu Pro Pro Leu Ala	
865 870 875 880	
aca gag gga gcc gaa tgt ctg aat gtt gat gat cag gat gaa ggg agc	2746
Thr Glu Gly Ala Glu Cys Leu Asn Val Asp Asp Gln Asp Glu Gly Ser	
881 886 891 896	
cca gtc acc caa gaa cct gag cta gca tca ggt ggt ggt ggt agt ggt	2794
Pro Val Thr Gln Glu Pro Glu Leu Ala Ser Gly Gly Gly Gly Ser Gly	
897 902 907 912	
gga gtt ggc aaa aag gag cag ctg tct gtg aag aag ctt cga gta gta	2842
Gly Val Gly Lys Lys Glu Gln Leu Ser Val Lys Lys Leu Arg Val Val	
913 918 923 928	
ctg ttt gct cta tgc tgc aat aca gaa cag gca gct gaa cac ttc cga	2890
Leu Phe Ala Leu Cys Cys Asn Thr Glu Gln Ala Ala Glu His Phe Arg	
929 934 939 944	
aat ccc cag cga cgt att cgc cgt tgg ctt cga cgt ttc cag gcc tcc	2938
Asn Pro Gln Arg Arg Ile Arg Arg Trp Leu Arg Arg Phe Gln Ala Ser	
945 950 955 960	
cag ggg gag aat cta gag ggc aaa tat ctg agc ttt gag gca gaa gag	2986
Gln Gly Glu Asn Leu Glu Gly Lys Tyr Leu Ser Phe Glu Ala Glu Glu	
961 966 971 976	
aaa ctg gct gag tgg gtg cta acc cag cgc gaa caa cag cta cct gta	3034
Lys Leu Ala Glu Trp Val Leu Thr Gln Arg Glu Gln Gln Leu Pro Val	
977 982 987 992	
aat gag gag acc ttg ttc cag aag gcc acc aaa ata gga cgt tct ttg	3082
Asn Glu Glu Thr Leu Phe Gln Lys Ala Thr Lys Ile Gly Arg Ser Leu	
993 998 1003 1008	
gaa ggg ggg ttt aag atc tcc tat gag tgg gct gtg cgt ttc atg ctg	3130
Glu Gly Gly Phe Lys Ile Ser Tyr Glu Trp Ala Val Arg Phe Met Leu	
1009 1014 1019 1024	
cgg cac cac ctg act ccc cat gcc cgg cga gct gtg gcc cac acc cta	3178



1249	1254	1259	1264	
cta gtt cag cgc tcc ttc ctg gtg gct agt gtt ctg cct ggc ccc gat				3898
Leu Val Gln Arg Ser Phe Leu Val Ala Ser Val Leu Pro Gly Pro Asp				
1265	1270	1275	1280	
ggc aac att aac tca cct aca aga aat gct gac atg cag gag gag cta				3946
Gly Asn Ile Asn Ser Pro Thr Arg Asn Ala Asp Met Gln Glu Glu Leu				
1281	1286	1291	1296	
att gcc tcc cta gag gag caa ctg aag ctg agt ggg gaa cat tct gag				3994
Ile Ala Ser Leu Glu Glu Gln Leu Lys Leu Ser Gly Glu His Ser Glu				
1297	1302	1307	1312	
tct tcc act cca cga ccc aga tca tct cct gaa gag aca att gag cct				4042
Ser Ser Thr Pro Arg Pro Arg Ser Ser Pro Glu Glu Thr Ile Glu Pro				
1313	1318	1323	1328	
gaa agt ctt cac cag ctc ttt gag ggt gaa agt gag acc gag tct ttc				4090
Glu Ser Leu His Gln Leu Phe Glu Gly Glu Ser Glu Thr Glu Ser Phe				
1329	1334	1339	1344	
tat ggc ttt gaa gaa gct gac cta gat ctg atg gag att tga gtgttgg				4139
Tyr Gly Phe Glu Glu Ala Asp Leu Asp Leu Met Glu Ile *				
1345	1350	1355		
ggatcatgagg ggggtgtggag tgggggtggg aacatgtgag ggagggtaaa ggggcttagg				4199
gaaaaggggg cataccaggt ggggtatttg gtttctatatt tttaatttta taccaccact				4259
ccccctgaa gttgacttac acttccctgt ggatttgtgg attaattagg aaaaccaata				4319
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tgggcatgat gctatctaata cattgttaat gtgagaacat ttctgaagat gggaaagaca				4619
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tccttgcccc ctttcccat tctcaacacc atccatccct ctggacaaag gatcatacag				4979
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ccagtttgag tcttcatcct gtaagcccc aggggcagtc cctgctttac tgaacttcac				5099

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 ctcaagatgt gatgggcctg gtggtacagg tgtgacattt gttaccaccc atttctccca 5699  
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 acaaccaagg atccatctgg gcttctcttc ccagctttt tgcctgatgc cattttattg 5879  
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 aagattatac caacagtgga tcagctgggt tttggccagg aagttgtctt tgtggactct 6119  
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 Met Ala Asp Thr Asp Leu Phe Met Glu Cys Glu Glu Glu Glu Leu Glu  
 1 5 10 15

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Pro Trp Gln Lys Ile Ser Asp Val Ile Glu Asp Ser Val Val Glu Asp	
17 22 27 32	
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Tyr Asn Ser Val Asp Lys Thr Thr Thr Val Ser Val Ser Gln Gln Pro	
33 38 43 48	
gtc tcg gct cca gtg ccc atc gct gcc cat gct tct gtt gct ggg cac	250
Val Ser Ala Pro Val Pro Ile Ala Ala His Ala Ser Val Ala Gly His	
49 54 59 64	
ctc tct aca tcc acc acc gtt agt agc agc ggg gca cag aac agc gac	298
Leu Ser Thr Ser Thr Thr Val Ser Ser Ser Gly Ala Gln Asn Ser Asp	
65 70 75 80	
agt aca aag aag act ctt gtc aca cta att gcc aac aac aat gct ggc	346
Ser Thr Lys Lys Thr Leu Val Thr Leu Ile Ala Asn Asn Asn Ala Gly	
81 86 91 96	
aat cct ttg gtc cag caa ggt gga cag cca ctc atc ctg acc cag aat	394
Asn Pro Leu Val Gln Gln Gly Gly Gln Pro Leu Ile Leu Thr Gln Asn	
97 102 107 112	
cca gcc cca ggt ctg ggc aca atg gtt act caa cca gta ttg agg cct	442
Pro Ala Pro Gly Leu Gly Thr Met Val Thr Gln Pro Val Leu Arg Pro	
113 118 123 128	
gtt cag gtc atg cag aat gcc aat cat gtg act agt tcc cct gtg gcc	490
Val Gln Val Met Gln Asn Ala Asn His Val Thr Ser Ser Pro Val Ala	
129 134 139 144	
tca caa cca ata ttt atc act acg cag gga ttt cct gta agg aat gtc	538
Ser Gln Pro Ile Phe Ile Thr Thr Gln Gly Phe Pro Val Arg Asn Val	
145 150 155 160	
cgg cct gta caa aat gca atg aat cag gtt ggg att gtg ctg aac gta	586
Arg Pro Val Gln Asn Ala Met Asn Gln Val Gly Ile Val Leu Asn Val	
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aat gaa gtg gcc aaa ttg gtg aat acc ctt aac acc atc cct tcc ctg	970
Asn Glu Val Ala Lys Leu Val Asn Thr Leu Asn Thr Ile Pro Ser Leu	
289 294 299 304	
ggc cag agt cct ggg cca gtg gtg gtg tcc aac aac agc tct gct cat	1018

Gly	Gln	Ser	Pro	Gly	Pro	Val	Val	Val	Ser	Asn	Asn	Ser	Ser	Ala	His	
305					310					315					320	
ggc	tct	caa	aga	acc	agc	gga	cct	gag	tct	tca	atg	aaa	gtg	acc	tct	1066
Gly	Ser	Gln	Arg	Thr	Ser	Gly	Pro	Glu	Ser	Ser	Met	Lys	Val	Thr	Ser	
321					326					331					336	
tcc	atc	cca	gta	ttt	gac	ctc	cag	gat	ggg	gga	cgg	aaa	ata	tgt	cca	1114
Ser	Ile	Pro	Val	Phe	Asp	Leu	Gln	Asp	Gly	Gly	Arg	Lys	Ile	Cys	Pro	
337					342					347					352	
cga	tgt	aat	gct	caa	ttt	cgt	gtt	act	gaa	gct	ttg	aga	ggg	cac	atg	1162
Arg	Cys	Asn	Ala	Gln	Phe	Arg	Val	Thr	Glu	Ala	Leu	Arg	Gly	His	Met	
353					358					363					368	
tgt	tac	tgt	tgc	cca	gaa	atg	gtt	gaa	tac	cag	aag	aaa	gga	aag	tcc	1210
Cys	Tyr	Cys	Cys	Pro	Glu	Met	Val	Glu	Tyr	Gln	Lys	Lys	Gly	Lys	Ser	
369					374					379					384	
ctg	gat	tca	gaa	ccc	agt	gtc	cca	tca	gca	gca	aag	ccc	cca	tcc	cct	1258
Leu	Asp	Ser	Glu	Pro	Ser	Val	Pro	Ser	Ala	Ala	Lys	Pro	Pro	Ser	Pro	
385					390					395					400	
gag	aaa	aca	gct	cct	gtt	gct	tcc	aca	ccc	tct	tct	aca	cct	att	cct	1306
Glu	Lys	Thr	Ala	Pro	Val	Ala	Ser	Thr	Pro	Ser	Ser	Thr	Pro	Ile	Pro	
401					406					411					416	
gct	ctg	tca	ccg	cct	acc	aaa	gta	cca	gaa	cca	aat	gag	aac	gtg	ggc	1354
Ala	Leu	Ser	Pro	Pro	Thr	Lys	Val	Pro	Glu	Pro	Asn	Glu	Asn	Val	Gly	
417					422					427					432	
gat	gcc	gtc	cag	acc	aaa	ctc	att	atg	ctt	gta	gat	gac	ttc	tac	tat	1402
Asp	Ala	Val	Gln	Thr	Lys	Leu	Ile	Met	Leu	Val	Asp	Asp	Phe	Tyr	Tyr	
433					438					443					448	
gga	cgg	gat	ggg	ggc	aaa	gta	gcc	cag	ctc	aca	aat	ttc	cct	aag	gtc	1450
Gly	Arg	Asp	Gly	Gly	Lys	Val	Ala	Gln	Leu	Thr	Asn	Phe	Pro	Lys	Val	
449					454					459					464	
gcc	aca	tct	ttc	cga	tgc	cca	cat	tgt	acc	aaa	agg	cta	aaa	aac	aat	1498
Ala	Thr	Ser	Phe	Arg	Cys	Pro	His	Cys	Thr	Lys	Arg	Leu	Lys	Asn	Asn	
465					470					475					480	
att	cga	ttc	atg	aac	cat	atg	aaa	cac	cac	gta	gaa	ctc	gat	cag	cag	1546
Ile	Arg	Phe	Met	Asn	His	Met	Lys	His	His	Val	Glu	Leu	Asp	Gln	Gln	
481					486					491					496	
aac	ggg	gag	gta	gat	ggg	cac	act	atc	tgc	cag	cac	tgt	tac	cgc	cag	1594
Asn	Gly	Glu	Val	Asp	Gly	His	Thr	Ile	Cys	Gln	His	Cys	Tyr	Arg	Gln	
497					502					507					512	
ttt	tcc	act	ccc	ttc	cag	ctt	cag	tgc	cac	ttg	gaa	aat	gtt	cat	agt	1642
Phe	Ser	Thr	Pro	Phe	Gln	Leu	Gln	Cys	His	Leu	Glu	Asn	Val	His	Ser	
513					518					523					528	
ccc	tat	gaa	tct	act	acc	aag	tgc	aag	atc	tgt	gaa	tgg	gcg	ttt	gaa	1690
Pro	Tyr	Glu	Ser	Thr	Thr	Lys	Cys	Lys	Ile	Cys	Glu	Trp	Ala	Phe	Glu	

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agt gag cca cta ttt	ctc cag cat atg aag	gat act cat aag cct	gga	1738
Ser Glu Pro Leu Phe	Leu Gln His Met Lys	Asp Thr His Lys Pro	Gly	
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gag atg cct tat gtt	tgc cag gtg tgt caa	tat cgc tcc tca ctc	tac	1786
Glu Met Pro Tyr Val	Cys Gln Val Cys Gln	Tyr Arg Ser Ser Leu	Tyr	
561	566	571	576	
tct gag gta gat gtc	cat ttt cgg atg atc	cat gag gat acc cgg	cat	1834
Ser Glu Val Asp Val	His Phe Arg Met Ile	His Glu Asp Thr Arg	His	
577	582	587	592	
ctg ctc tgc cct tat	tgc ctg aag gtc ttc	aaa aat ggc aat gca	ttc	1882
Leu Leu Cys Pro Tyr	Cys Leu Lys Val Phe	Lys Asn Gly Asn Ala	Phe	
593	598	603	608	
caa cag cat tac atg	agg cac cag aag aga	aat gtt tat cac tgc	aac	1930
Gln Gln His Tyr Met	Arg His Gln Lys Arg	Asn Val Tyr His Cys	Asn	
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aaa tgc cgg ctg cag	ttt ctc ttt gcc aag	gac aaa att gaa cac	aag	1978
Lys Cys Arg Leu Gln	Phe Leu Phe Ala Lys	Asp Lys Ile Glu His	Lys	
625	630	635	640	
ctt caa cac cat aaa	acc ttc cgt aaa ccc	aag cag ctg gag ggc	ttg	2026
Leu Gln His His Lys	Thr Phe Arg Lys Pro	Lys Gln Leu Glu Gly	Leu	
641	646	651	656	
aaa cca ggc acc aag	gtg aca atc cgg gct	tcc cga ggg cag cca	cga	2074
Lys Pro Gly Thr Lys	Val Thr Ile Arg Ala	Ser Arg Gly Gln Pro	Arg	
657	662	667	672	
act gtt cct gta tcc	tct aat gat aca cct	ccc agc gcc ttg cag	gag	2122
Thr Val Pro Val Ser	Ser Asn Asp Thr Pro	Pro Ser Ala Leu Gln	Glu	
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gca gca ccg ctg acc	tcc tca atg gac cct	ctg cct gtc ttc ctt	tat	2170
Ala Ala Pro Leu Thr	Ser Ser Met Asp Pro	Leu Pro Val Phe Leu	Tyr	
689	694	699	704	
ccc cct gtc cag cgc	agc atc cag aag aga	gct gtt agg aaa atg	agt	2218
Pro Pro Val Gln Arg	Ser Ile Gln Lys Arg	Ala Val Arg Lys Met	Ser	
705	710	715	720	
gtc atg ggc cgg cag	aca tgc ctg gag tgc	agc ttc gag atc cca	gac	2266
Val Met Gly Arg Gln	Thr Cys Leu Glu Cys	Ser Phe Glu Ile Pro	Asp	
721	726	731	736	
ttc cct aat cat ttc	cct act tac gta cac	tgc tct ctg tgt cgc	tat	2314
Phe Pro Asn His Phe	Pro Thr Tyr Val His	Cys Ser Leu Cys Arg	Tyr	
737	742	747	752	
agc acc tgc tgt tct	cga gct tat gcc aac	cac atg atc aac aat	cat	2362
Ser Thr Cys Cys Ser	Arg Ala Tyr Ala Asn	His Met Ile Asn Asn	His	
753	758	763	768	

gtt cca cgg aag agc ccc aag tat ttg gct ttg ttt aaa aat tct gtg	2410
Val Pro Arg Lys Ser Pro Lys Tyr Leu Ala Leu Phe Lys Asn Ser Val	
769 774 779 784	
agt gga atc aag ctg gcc tgc act tca tgt acc ttt gtt acc tct gtg	2458
Ser Gly Ile Lys Leu Ala Cys Thr Ser Cys Thr Phe Val Thr Ser Val	
785 790 795 800	
ggc gat gct atg gcc aag cat ttg gta ttc aac ccc tct cac aga tcc	2506
Gly Asp Ala Met Ala Lys His Leu Val Phe Asn Pro Ser His Arg Ser	
801 806 811 816	
agc agc atc ctg cca cgg gga ctc act tgg ata gct cac tca agg cat	2554
Ser Ser Ile Leu Pro Arg Gly Leu Thr Trp Ile Ala His Ser Arg His	
817 822 827 832	
ggc cag act cgt gac cga gtg cat gac cgg aac gtg aag aat atg tac	2602
Gly Gln Thr Arg Asp Arg Val His Asp Arg Asn Val Lys Asn Met Tyr	
833 838 843 848	
cct cct cct tcc ttc ccc act aac aaa gct gcc act gtg aaa tct gcg	2650
Pro Pro Pro Ser Phe Pro Thr Asn Lys Ala Ala Thr Val Lys Ser Ala	
849 854 859 864	
ggg gcc acc cca gct gag cct gaa gag cta cta act ccc tta gcc cca	2698
Gly Ala Thr Pro Ala Glu Pro Glu Glu Leu Leu Thr Pro Leu Ala Pro	
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Ala Leu Pro Ser Pro Ala Ser Thr Ala Thr Pro Pro Pro Thr Pro Thr	
881 886 891 896	
cac ccg cag gct tta gcc ctt cca ccg ctg gct aca gag gga gcc gaa	2794
His Pro Gln Ala Leu Ala Leu Pro Pro Leu Ala Thr Glu Gly Ala Glu	
897 902 907 912	
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Cys Leu Asn Val Asp Asp Gln Asp Glu Gly Ser Pro Val Thr Gln Glu	
913 918 923 928	
cct gag cta gca tca ggt ggt ggt ggt agt ggt gga gtt ggc aaa aag	2890
Pro Glu Leu Ala Ser Gly Gly Gly Gly Ser Gly Gly Val Gly Lys Lys	
929 934 939 944	
gag cag ctg tct gtg aag aag ctt cga gta gta ctg ttt gct cta tgc	2938
Glu Gln Leu Ser Val Lys Lys Leu Arg Val Val Leu Phe Ala Leu Cys	
945 950 955 960	
tgc aat aca gaa cag gca gct gaa cac ttc cga aat ccc cag cga cgt	2986
Cys Asn Thr Glu Gln Ala Ala Glu His Phe Arg Asn Pro Gln Arg Arg	
961 966 971 976	
att cgc cgt tgg ctt cga cgt ttc cag gcc tcc cag ggg gag aat cta	3034
Ile Arg Arg Trp Leu Arg Arg Phe Gln Ala Ser Gln Gly Glu Asn Leu	
977 982 987 992	



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Glu Gly Lys Tyr Leu Ser Phe Glu Ala Glu Glu Lys Leu Ala Glu Trp	
993 998 1003 1008	
gtg cta acc cag cgc gaa caa cag cta cct gta aat gag gag acc ttg	3130
Val Leu Thr Gln Arg Glu Gln Gln Leu Pro Val Asn Glu Glu Thr Leu	
1009 1014 1019 1024	
ttc cag aag gcc acc aaa ata gga cgt tct ttg gaa ggg ggg ttt aag	3178
Phe Gln Lys Ala Thr Lys Ile Gly Arg Ser Leu Glu Gly Gly Phe Lys	
1025 1030 1035 1040	
atc tcc tat gag tgg gct gtg cgt ttc atg ctg cgg cac cac ctg act	3226
Ile Ser Tyr Glu Trp Ala Val Arg Phe Met Leu Arg His His Leu Thr	
1041 1046 1051 1056	
ccc cat gcc cgg cga gct gtg gcc cac acc cta cct aag gat gta gca	3274
Pro His Ala Arg Arg Ala Val Ala His Thr Leu Pro Lys Asp Val Ala	
1057 1062 1067 1072	
gag aat gca gga ctc ttc att gat ttt gta caa cgg cag att cac aac	3322
Glu Asn Ala Gly Leu Phe Ile Asp Phe Val Gln Arg Gln Ile His Asn	
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cag gac tta ccc ttg tct atg att gtg gct att gat gag atc tct ttg	3370
Gln Asp Leu Pro Leu Ser Met Ile Val Ala Ile Asp Glu Ile Ser Leu	
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Phe Leu Asp Thr Glu Val Leu Ser Ser Asp Asp Arg Lys Glu Asn Ala	
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ctg cag aca gtg ggc aca ggg gaa cct tgg tgt gat gta gtc cta gcc	3466
Leu Gln Thr Val Gly Thr Gly Glu Pro Trp Cys Asp Val Val Leu Ala	
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Ile Leu Ala Asp Gly Thr Val Leu Pro Thr Leu Val Phe Tyr Arg Gly	
1137 1142 1147 1152	
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Gln Met Asp Gln Pro Ala Asn Met Pro Asp Ser Ile Leu Leu Glu Ala	
1153 1158 1163 1168	
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Lys Glu Ser Gly Tyr Ser Asp Asp Glu Ile Met Glu Leu Trp Ser Thr	
1169 1174 1179 1184	
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Arg Val Trp Gln Lys His Thr Ala Cys Gln Arg Ser Lys Gly Met Leu	
1185 1190 1195 1200	
gtg atg gac tgt cat cgc act cac ttg tca gaa gag gta ctg gct atg	3706
Val Met Asp Cys His Arg Thr His Leu Ser Glu Glu Val Leu Ala Met	
1201 1206 1211 1216	
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Leu Ser Ala Ser Ser Thr Leu Pro Ala Val Val Pro Ala Gly Cys Ser	
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Ser Lys Ile Gln Pro Leu Asp Val Cys Ile Lys Arg Thr Val Lys Asn	
1233	1238 1243 1248
ttc ctg cat aaa aaa tgg aag gaa cag gct cgg gaa atg gca gat act	3850
Phe Leu His Lys Lys Trp Lys Glu Gln Ala Arg Glu Met Ala Asp Thr	
1249	1254 1259 1264
gca tgt gat tct gat gtc ctg ctt cag ctg gtg ctt gtc tgg ctg ggt	3898
Ala Cys Asp Ser Asp Val Leu Leu Gln Leu Val Leu Val Trp Leu Gly	
1265	1270 1275 1280
gaa gtg cta ggt gtc att ggg gac tgt cca gag cta gtt cag cgc tcc	3946
Glu Val Leu Gly Val Ile Gly Asp Cys Pro Glu Leu Val Gln Arg Ser	
1281	1286 1291 1296
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Phe Leu Val Ala Ser Val Leu Pro Gly Pro Asp Gly Asn Ile Asn Ser	
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cct aca aga aat gct gac atg cag gag gag cta att gcc tcc cta gag	4042
Pro Thr Arg Asn Ala Asp Met Gln Glu Glu Leu Ile Ala Ser Leu Glu	
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Glu Gln Leu Lys Leu Ser Gly Glu His Ser Glu Ser Ser Thr Pro Arg	
1329	1334 1339 1344
ccc aga tca tct cct gaa gag aca att gag cct gaa agt ctt cac cag	4138
Pro Arg Ser Ser Pro Glu Glu Thr Ile Glu Pro Glu Ser Leu His Gln	
1345	1350 1355 1360
ctc ttt gag ggt gaa agt gag acc gag tct ttc tat ggc ttt gaa gaa	4186
Leu Phe Glu Gly Glu Ser Glu Thr Glu Ser Phe Tyr Gly Phe Glu Glu	
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Ala Asp Leu Asp Leu Met Glu Ile *	
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Val Pro Gly Thr Arg Lys Cys Glu Leu Ala Arg Ser Cys Ser Leu Gly		
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Val Phe Gly Val Arg Met Ala Leu Glu Gly Met Ser Lys Arg Lys Arg		
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aag aga agt gtc cag gag gga gag aat cct gac gac ggc gtt cgc ggg		192
Lys Arg Ser Val Gln Glu Gly Glu Asn Pro Asp Asp Gly Val Arg Gly		
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Ser Pro Pro Glu Asp Tyr Arg Leu Gly Gln Val Ala Ser Ser Leu Phe		
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Arg Gly Glu His His Ser Arg Gly Gly Thr Gly Arg Leu Ala Ser Leu		
77 82 87 92		
ttc agt tct ctg gag ccc cag att caa ccc gtg tac gtg cct gtg cct		336
Phe Ser Ser Leu Glu Pro Gln Ile Gln Pro Val Tyr Val Pro Val Pro		
93 98 103 108		
aaa caa acc atc aaa aaa acg aaa cgg aat gag gag gaa gaa agt aca		384
Lys Gln Thr Ile Lys Lys Thr Lys Arg Asn Glu Glu Glu Glu Ser Thr		
109 114 119 124		
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Ser Gln Ile Glu Arg Pro Leu Ser Gln Glu Pro Ala Lys Lys Val Lys		
125 130 135 140		
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Ala Lys Lys Lys His Thr Asn Ala Glu Lys Lys Leu Ala Asp Arg Glu		
141 146 151 156		

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Ser Ala Leu Ala Ser Ala Asp Leu Glu Glu Glu Ile His Gln Lys Gln	
157 162 167 172	
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Gly Gln Lys Arg Lys Asn Ser Gln Pro Gly Val Lys Val Ala Asp Arg	
173 178 183 188	
aaa ata ctt gat gac aca gaa gac aca gtt gtc agt caa aga aag aaa	624
Lys Ile Leu Asp Asp Thr Glu Asp Thr Val Ser Gln Arg Lys Lys	
189 194 199 204	
att caa atc aac caa gaa gaa gag aga tta aag aat gag aga act gtg	672
Ile Gln Ile Asn Gln Glu Glu Glu Arg Leu Lys Asn Glu Arg Thr Val	
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Phe Phe Lys Glu Tyr Gly Gln Ile Glu Ser Val Arg Phe Arg Ser Leu	
237 242 247 252	
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Ile Pro Ala Glu Gly Thr Leu Ser Lys Lys Leu Ala Ala Ile Lys Arg	
253 258 263 268	
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Lys Ile His Pro Asp Gln Lys Asn Ile Asn Ala Tyr Val Val Phe Lys	
269 274 279 284	
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Ala Asp Gly Phe Arg Ile Arg Val Asp Leu Ala Ser Glu Thr Ser Ser	
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Arg Asp Lys Arg Ser Val Phe Val Gly Asn Leu Pro Tyr Lys Val Glu	
317 322 327 332	
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Glu Ser Ala Ile Glu Lys His Phe Leu Asp Cys Gly Ser Ile Met Ala	
333 338 343 348	
gtg agg att gtg aga gac aaa atg aca ggc atc ggc aaa ggg ttt ggc	1104
Val Arg Ile Val Arg Asp Lys Met Thr Gly Ile Gly Lys Gly Phe Gly	
349 354 359 364	
tat gtg ctc ttt gag aat aca gat tct gtt cat ctt gct ctg aaa tta	1152
Tyr Val Leu Phe Glu Asn Thr Asp Ser Val His Leu Ala Leu Lys Leu	
365 370 375 380	
aat aat tct gaa ctc atg ggg aga aaa ctc aga gtc atg cgt tct gtt	1200

Asn Asn Ser Glu Leu Met Gly Arg Lys Leu Arg Val Met Arg Ser Val	
381 386 391 396	
aat aaa gaa aaa ttt aaa caa caa aat tca aat cca cga ttg aag aat	1248
Asn Lys Glu Lys Phe Lys Gln Gln Asn Ser Asn Pro Arg Leu Lys Asn	
397 402 407 412	
gtc agt aaa cct aag cag gga ctt aat ttt act tcc aaa act gca gaa	1296
Val Ser Lys Pro Lys Gln Gly Leu Asn Phe Thr Ser Lys Thr Ala Glu	
413 418 423 428	
gga cat cct aaa agc tta ttt att gga gaa aaa gct gtt ctc ctt aaa	1344
Gly His Pro Lys Ser Leu Phe Ile Gly Glu Lys Ala Val Leu Leu Lys	
429 434 439 444	
acg aag aag aaa gga cag aag aaa agt gga cgc cct aag aaa cag aga	1392
Thr Lys Lys Lys Gly Gln Lys Lys Ser Gly Arg Pro Lys Lys Gln Arg	
445 450 455 460	
aaa cag aaa taa caa ccaggaactg ctttttcttt tctgtctgag tactgcta	1447
Lys Gln Lys *	
461	
aaaagtgcta ttatctgctg atagcatcgt ctgctattca tgtgttgagt tttatacttc	1507
tttatggatg gtgtatgtga aatgtggaga cttccacatt ctcagtttat tcacattgtg	1567
atactacctt tgaaggtttt tttgtttttg ttttgttttt tgagatggag tttggctggt	1627
gtctcccagg ctggagtgcg gtggcgtgat cttggctcac tgcaacctct gccttctggg	1687
ttcaagcgct tttcctgcct cagcctccca agtagctggg attacaggcg cctgccacca	1747
cgcttggtta attttttgta ttttttagtag agacgggggt tcaccatggt ggccaggctg	1807
gtctcgaaact cctgacctca ggtgatccac ctgccttggc ctctcaaagt gctgggatta	1867
caggcgtgag tcaactgcacc caagcctcct ttctcatttt gcctattaaa cctctgctct	1927
taaccttaaa aaaaaaaaaa	1946

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acgcgcactt gtcggagtga cgggccctgc ggaagaggag gtgcggccca gggcgcaggg	180
gagccctcgg gagcggggccc ggccctcagc gccgccccgg ccgtgtcccg gaggagcggc	240
ctgcgccgcc gcgcgagagg aagcaccag gc atg tgg aat atg ctc ata gtg	293
Met Trp Asn Met Leu Ile Val	
1 5	
gcg atg tgc ttg gcc ctt ctg ggc tgc ctg caa gcc cag gag ctc cag	341
Ala Met Cys Leu Ala Leu Leu Gly Cys Leu Gln Ala Gln Glu Leu Gln	
8 13 18 23	
gga cat gtc tcc ata atc ctg ctg gga gca act ggg <sup>4</sup> gac ctg gct aag	389
Gly His Val Ser Ile Ile Leu Leu Gly Ala Thr Gly Asp Leu Ala Lys	
24 29 34 39	
aag tac tta tgg cag gga ctg ttc cag ctg tac ctg gat gaa gcg ggg	437
Lys Tyr Leu Trp Gln Gly Leu Phe Gln Leu Tyr Leu Asp Glu Ala Gly	
40 45 50 55	
agg ggt cac agt ttt agc ttc cat gga gct gct ctg aca gcc ccc aag	485
Arg Gly His Ser Phe Ser Phe His Gly Ala Ala Leu Thr Ala Pro Lys	
56 61 66 71	
cag ggt caa gag ctc atg gcc aag gcc ctg gaa tcc ctc tcc tgc ccc	533
Gln Gly Gln Glu Leu Met Ala Lys Ala Leu Glu Ser Leu Ser Cys Pro	
72 77 82 87	
aag gac atg gca ccc agt cac tgt gca gag cac aag gat cag ttc ctg	581
Lys Asp Met Ala Pro Ser His Cys Ala Glu His Lys Asp Gln Phe Leu	
88 93 98 103	
cag ctg agc cag tac cgc caa ctg aag acg gcc gag gac tat cag gcc	629
Gln Leu Ser Gln Tyr Arg Gln Leu Lys Thr Ala Glu Asp Tyr Gln Ala	
104 109 114 119	
ctg aac aag gac atc gag gca cag ctc cag cac gca ggc ctc cgg gag	677
Leu Asn Lys Asp Ile Glu Ala Gln Leu Gln His Ala Gly Leu Arg Glu	
120 125 130 135	
gct ggc agg atc ttc tac ttc tca gtg cca ccc ttc gcc tat gaa gac	725
Ala Gly Arg Ile Phe Tyr Phe Ser Val Pro Pro Phe Ala Tyr Glu Asp	
136 141 146 151	
att gcc cgc aac atc aac agt agc tgc cgg cca ggc ccg ggc gcc tgg	773
Ile Ala Arg Asn Ile Asn Ser Ser Cys Arg Pro Gly Pro Gly Ala Trp	
152 157 162 167	
ctg cgg gtt gtc ctt gag aaa ccc ttt ggc cat gac cac ttc tca gcc	821
Leu Arg Val Val Leu Glu Lys Pro Phe Gly His Asp His Phe Ser Ala	
168 173 178 183	
cag cag ctg gcc aca gaa ctc ggg acc ttt ttc cag gag gag gag atg	869
Gln Gln Leu Ala Thr Glu Leu Gly Thr Phe Phe Gln Glu Glu Glu Met	
184 189 194 199	

tac cgg gtg gac cat tac tta ggc aag cag gct gtg gcg cag atc ctg	917
Tyr Arg Val Asp His Tyr Leu Gly Lys Gln Ala Val Ala Gln Ile Leu	
200 205 210 215	
cct ttc cga gac cag aac cgc aag gct ttg gac ggc ctc tgg aac cgg	965
Pro Phe Arg Asp Gln Asn Arg Lys Ala Leu Asp Gly Leu Trp Asn Arg	
216 221 226 231	
cac cat gtg gag cgg gtg gag atc atc atg aaa gag acc gtg gat gct	1013
His His Val Glu Arg Val Glu Ile Ile Met Lys Glu Thr Val Asp Ala	
232 237 242 247	
gaa ggc cgc acc agc ttc tat gag gag tac ggt gtc att cgc gac gtc	1061
Glu Gly Arg Thr Ser Phe Tyr Glu Glu Tyr Gly Val Ile Arg Asp Val	
248 253 258 263	
ctc cag aac cat ctg acg gag gtc ctc acc ctc gtg gcc atg gag ctg	1109
Leu Gln Asn His Leu Thr Glu Val Leu Thr Leu Val Ala Met Glu Leu	
264 269 274 279	
ccc cac aat gtc agc agt gcg gag gct gtg ctg cgg cac aag ctt cag	1157
Pro His Asn Val Ser Ser Ala Glu Ala Val Leu Arg His Lys Leu Gln	
280 285 290 295	
gtc ttc cag gcg ctg cgg ggc ctg cag agg ggc agt gcc gtc gtg ggc	1205
Val Phe Gln Ala Leu Arg Gly Leu Gln Arg Gly Ser Ala Val Val Gly	
296 301 306 311	
cag tac cag tct tac agt gag cag gtg cgc aga gag ctg cag aag cca	1253
Gln Tyr Gln Ser Tyr Ser Glu Gln Val Arg Arg Glu Leu Gln Lys Pro	
312 317 322 327	
gac agc ttc cac agc ctg acg ccg acc ttc gca ggt gtc cta gtg cac	1301
Asp Ser Phe His Ser Leu Thr Pro Thr Phe Ala Gly Val Leu Val His	
328 333 338 343	
att gac aac ctt cgc tgg gag ggc gtg cct ttc atc ctg atg tct ggc	1349
Ile Asp Asn Leu Arg Trp Glu Gly Val Pro Phe Ile Leu Met Ser Gly	
344 349 354 359	
aaa gcc ttg gac gag aga gtg ggc tac gct cgg atc ttg ttc aag aac	1397
Lys Ala Leu Asp Glu Arg Val Gly Tyr Ala Arg Ile Leu Phe Lys Asn	
360 365 370 375	
cag gcc tgc tgt gtg cag agc gaa aag cac tgg gcc gcg gcg cag agc	1445
Gln Ala Cys Cys Val Gln Ser Glu Lys His Trp Ala Ala Ala Gln Ser	
376 381 386 391	
cag tgc ctg ccc cgg cag ctc gtc ttc cac atc ggc cat ggc gac ctg	1493
Gln Cys Leu Pro Arg Gln Leu Val Phe His Ile Gly His Gly Asp Leu	
392 397 402 407	
ggc agc cct gcc gtg ctg gtc agc agg aac ctg ttc agg ccc tcc ctg	1541
Gly Ser Pro Ala Val Leu Val Ser Arg Asn Leu Phe Arg Pro Ser Leu	
408 413 418 423	
ccc tcc agc tgg aag gaa atg gag gga cca cct ggg ctc cgc ctt ttc	1589



Pro Ser Ser Trp Lys Glu Met Glu Gly Pro Pro Gly Leu Arg Leu Phe 424 429 434 439	
ggc agc cct ctg tcc gat tac tac gcc tac agc cct gtg cgg gag cgg Gly Ser Pro Leu Ser Asp Tyr Tyr Ala Tyr Ser Pro Val Arg Glu Arg 440 445 450 455	1637
gac gcc cac tcc gtc ctc tta tcc cat atc ttc cat ggc cgg aag aat Asp Ala His Ser Val Leu Leu Ser His Ile Phe His Gly Arg Lys Asn 456 461 466 471	1685
ttc ttc atc acc aca gag aac ttg ctg gcc tcc tgg aac ttc tgg acc Phe Phe Ile Thr Thr Glu Asn Leu Leu Ala Ser Trp Asn Phe Trp Thr 472 477 482 487	1733
cct ctg ctg gag agc ctg gcc cat aag gcc cca cgc ctc tac cct gga Pro Leu Leu Glu Ser Leu Ala His Lys Ala Pro Arg Leu Tyr Pro Gly 488 493 498 503	1781
gga gct gag aat ggc cgt ctg ttg gac ttt gag ttc agt agc ggc cgg Gly Ala Glu Asn Gly Arg Leu Leu Asp Phe Glu Phe Ser Ser Gly Arg 504 509 514 519	1829
ttg ttc ttt tcc cag cag cag ccg gag cag ctg gtg cca ggg cca ggg Leu Phe Phe Ser Gln Gln Gln Pro Glu Gln Leu Val Pro Gly Pro Gly 520 525 530 535	1877
ccg gcc cca atg ccc agt gac ttc cag gtc ctc agg gcc aag tac cga Pro Ala Pro Met Pro Ser Asp Phe Gln Val Leu Arg Ala Lys Tyr Arg 536 541 546 551	1925
gag agc ccg ctg gtc tcc gcc tgg tcc gag gag ctg atc tct aag ctg Glu Ser Pro Leu Val Ser Ala Trp Ser Glu Glu Leu Ile Ser Lys Leu 552 557 562 567	1973
gct aat gac atc gag gcc acc gct gtg cga gcc gtg cgg cgc ttt ggc Ala Asn Asp Ile Glu Ala Thr Ala Val Arg Ala Val Arg Arg Phe Gly 568 573 578 583	2021
cag ttc cac ctg gca ctg tgc ggg ggc tgc agc ccc gtg gcc ctg ttc Gln Phe His Leu Ala Leu Ser Gly Gly Ser Ser Pro Val Ala Leu Phe 584 589 594 599	2069
cag cag ctg gcc acg gcg cac tat ggc ttc ccc tgg gcc cac acg cac Gln Gln Leu Ala Thr Ala His Tyr Gly Phe Pro Trp Ala His Thr His 600 605 610 615	2117
ctg tgg ctg gtt gac gag cgc tgc gtc cca ctc tca gac ccg gag tcc Leu Trp Leu Val Asp Glu Arg Cys Val Pro Leu Ser Asp Pro Glu Ser 616 621 626 631	2165
aac ttc cag ggc ctg cag gcc cac ctg ctg cag cac gtc cgg atc ccc Asn Phe Gln Gly Leu Gln Ala His Leu Leu Gln His Val Arg Ile Pro 632 637 642 647	2213
tac tac aac atc cac ccc atg cct gtg cac ctg cag cag cgg ctc tgc Tyr Tyr Asn Ile His Pro Met Pro Val His Leu Gln Gln Arg Leu Cys	2261

648	653	658	663	
gcc gag gag gac cag ggc gcc cag atc tat gcc agg gag atc tca gcc				2309
Ala Glu Glu Asp Gln Gly Ala Gln Ile Tyr Ala Arg Glu Ile Ser Ala				
664	669	674	679	
ctg ggg gcc aac agc agc ttc gac ctg gtg ctg ctg ggc atg ggt gcc				2357
Leu Gly Ala Asn Ser Ser Phe Asp Leu Val Leu Leu Gly Met Gly Ala				
680	685	690	695	
gac ggg cac aca gcc tcc ctc ttc cca cag tca ccc act ggc ctg gat				2405
Asp Gly His Thr Ala Ser Leu Phe Pro Gln Ser Pro Thr Gly Leu Asp				
696	701	706	711	
ggc gag cag ctg gtc gtg ctg acc acg agc ccc tcc cag cca cac cgc				2453
Gly Glu Gln Leu Val Val Leu Thr Thr Ser Pro Ser Gln Pro His Arg				
712	717	722	727	
cgc atg agc ctt agc ctg cct ctc atc aac cgc gcc aag aag gtg gca				2501
Arg Met Ser Leu Ser Leu Pro Leu Ile Asn Arg Ala Lys Lys Val Ala				
728	733	738	743	
gtc ctg gtc atg ggc agg atg aag cgt gag atc acc acg ctg gtg agc				2549
Val Leu Val Met Gly Arg Met Lys Arg Glu Ile Thr Thr Leu Val Ser				
744	749	754	759	
cgg gtg ggc cat gag ccc aag aag tgg ccc atc tcg ggt gtc ctg ccg				2597
Arg Val Gly His Glu Pro Lys Lys Trp Pro Ile Ser Gly Val Leu Pro				
760	765	770	775	
cac tcc ggc cag ctg gtg tgg tac atg gac tac gac gcc ttc ctg gga				2645
His Ser Gly Gln Leu Val Trp Tyr Met Asp Tyr Asp Ala Phe Leu Gly				
776	781	786	791	
tga gggc gcctgtgcc cttgcccgt tcgctcctgt gctttccttc gcccggtgtct				2702
*				
792				
tcctccctt ctggccccg ccacctgccc agcgtgccct ggctctccag aaccttctat				2762
cccacagtca ggccccagag agggcaggac aagccttgtc ccgatgcctt tgaccggcag				2822
ctctgtgtat tgggtgatag atgcagaaac a				2853

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aattcccggg tcgaccacg cgtccgcaga attctcaaag ctgacggatc ggtggcagaa	120
tgctgtccag ggtgttcggc agaggaaggg tgacgttgat gggctggtga ggcagtggca	180
agatttcact acttctgtgg agaacttgtt tcgcttcctc actgacacca gccacctgct	240
atctgcagtg aagggccagg agcgccttcag cctataccaa accagaagtc tgatccatga	300
gctgaagaat aaagaaattc attttcaaag gaggcgaact acctgtgcc taaccttgga	360
agctggagaa aagttactgc tcacaactga cctgaaaact aaagagtctg tgggtaggag	420
aatcagtcaa cttcaggaca gctggaaaga c atg gag ccc cag ctg gca gag	472
Met Glu Pro Gln Leu Ala Glu	
1 5	
atg att aag cag ttc cag agc act gta gag acc tgg gac cag tgt gaa	520
Met Ile Lys Gln Phe Gln Ser Thr Val Glu Thr Trp Asp Gln Cys Glu	
8 13 18 23	
aag aaa atc aag gag ttg aaa agc agg ctg caa gtt tta aag gca caa	568
Lys Lys Ile Lys Glu Leu Lys Ser Arg Leu Gln Val Leu Lys Ala Gln	
24 29 34 39	
agt gaa gat cct ctt cca gag ctt cac gag gac ctc cat aac gaa aaa	616
Ser Glu Asp Pro Leu Pro Glu Leu His Glu Asp Leu His Asn Glu Lys	
40 45 50 55	
gag ctg att aag gaa cta gaa cag tct ttg gct agc tgg act cag aac	664
Glu Leu Ile Lys Glu Leu Glu Gln Ser Leu Ala Ser Trp Thr Gln Asn	
56 61 66 71	
ttg aaa gaa ctt caa act atg aag gcg gac tta acc cgg cac gtt ctc	712
Leu Lys Glu Leu Gln Thr Met Lys Ala Asp Leu Thr Arg His Val Leu	
72 77 82 87	
gtg gaa gat gtg atg gtt ttg aag gag caa ata gag cat ttg cac aga	760
Val Glu Asp Val Met Val Leu Lys Glu Gln Ile Glu His Leu His Arg	
88 93 98 103	
caa tgg gag gac ctc tgc tta agg gtg gcc ata cgt aaa cag gag att	808
Gln Trp Glu Asp Leu Cys Leu Arg Val Ala Ile Arg Lys Gln Glu Ile	
104 109 114 119	
gaa gac aga ctc aat aca tgg gtt gta ttc aat gaa aaa aat aaa gag	856
Glu Asp Arg Leu Asn Thr Trp Val Val Phe Asn Glu Lys Asn Lys Glu	
120 125 130 135	
ttg tgt gcc tgg ctg gtg cag atg gaa aac aaa gtt cta cag aca gcg	904
Leu Cys Ala Trp Leu Val Gln Met Glu Asn Lys Val Leu Gln Thr Ala	
136 141 146 151	
gac att agt att gaa gaa atg att gaa aag tta cag aag gac tgc atg	952
Asp Ile Ser Ile Glu Glu Met Ile Glu Lys Leu Gln Lys Asp Cys Met	
152 157 162 167	

gaa gaa ata aac ttg ttt agt gaa aac aag tta cag tta aag cag atg	1000
Glu Glu Ile Asn Leu Phe Ser Glu Asn Lys Leu Gln Leu Lys Gln Met	
168 173 178 183	
ggt gac cag ttg atc aag gcc agc aac aaa tca aga gca gct gag atc	1048
Gly Asp Gln Leu Ile Lys Ala Ser Asn Lys Ser Arg Ala Ala Glu Ile	
184 189 194 199	
gat gac aag ctc aac aaa att aac gat cgt tgg caa cat ctt ttt gat	1096
Asp Asp Lys Leu Asn Lys Ile Asn Asp Arg Trp Gln His Leu Phe Asp	
200 205 210 215	
gtc atc gga tca agg gtg aag aag ctg aag gag acc ttt gct ttt att	1144
Val Ile Gly Ser Arg Val Lys Lys Leu Lys Glu Thr Phe Ala Phe Ile	
216 221 226 231	
cag cag ttg gac aaa aac atg agc aac ctt cgc acc tgg ttg gct cga	1192
Gln Gln Leu Asp Lys Asn Met Ser Asn Leu Arg Thr Trp Leu Ala Arg	
232 237 242 247	
att gag tct gag ctt tcc aag cct gtt gtt tat gat gtc tgc gat gat	1240
Ile Glu Ser Glu Leu Ser Lys Pro Val Val Tyr Asp Val Cys Asp Asp	
248 253 258 263	
caa gag atc cag aag agg ctc gct gag cag cag gat cta cag cga gat	1288
Gln Glu Ile Gln Lys Arg Leu Ala Glu Gln Gln Asp Leu Gln Arg Asp	
264 269 274 279	
att gaa caa cac agc gca ggg gtg gag tcc gtg ttt aac atc tgt gac	1336
Ile Glu Gln His Ser Ala Gly Val Glu Ser Val Phe Asn Ile Cys Asp	
280 285 290 295	
gtc cta ctg cac gac tcc gat gcc tgt gca aat gag acc gag tgt gac	1384
Val Leu Leu His Asp Ser Asp Ala Cys Ala Asn Glu Thr Glu Cys Asp	
296 301 306 311	
tcg atc cag cag acc acc agg agc ctg gac aga cgc tgg agg aac att	1432
Ser Ile Gln Gln Thr Thr Arg Ser Leu Asp Arg Arg Trp Arg Asn Ile	
312 317 322 327	
tgt gcc atg tcc atg gag cgg cgc atg aaa atc gag gag acg tgg cgc	1480
Cys Ala Met Ser Met Glu Arg Arg Met Lys Ile Glu Glu Thr Trp Arg	
328 333 338 343	
ctg tgg cag aag ttt tta gac gac tat tct cgc ttt gag gac tgg ctc	1528
Leu Trp Gln Lys Phe Leu Asp Asp Tyr Ser Arg Phe Glu Asp Trp Leu	
344 349 354 359	
aag tca gct gag agg acg gca gcc tgc cca aat tcc tca gag gtg ttg	1576
Lys Ser Ala Glu Arg Thr Ala Ala Cys Pro Asn Ser Ser Glu Val Leu	
360 365 370 375	
tac acg agt gcc aaa gag gaa ctg aag agg ttt gag gcc ttt cag cgg	1624
Tyr Thr Ser Ala Lys Glu Glu Leu Lys Arg Phe Glu Ala Phe Gln Arg	
376 381 386 391	

cag att cat gag cgg ctc act cag ctg gag ctc atc aac aag cag tac	1672
Gln Ile His Glu Arg Leu Thr Gln Leu Glu Leu Ile Asn Lys Gln Tyr	
392 397 402 407	
cgg cgg ctg gcc cgg gag aac cgc aca gac acg gcc agc agg ctg aag	1720
Arg Arg Leu Ala Arg Glu Asn Arg Thr Asp Thr Ala Ser Arg Leu Lys	
408 413 418 423	
cag atg gtc cac gag ggc aac cag cgc tgg gac aac ctt cag agg cgg	1768
Gln Met Val His Glu Gly Asn Gln Arg Trp Asp Asn Leu Gln Arg Arg	
424 429 434 439	
gtc aca gcc gtc ctg cgg aga ctc agg cat ttc acc aac cag agg gaa	1816
Val Thr Ala Val Leu Arg Arg Leu Arg His Phe Thr Asn Gln Arg Glu	
440 445 450 455	
gaa ttt gag ggc acc agg gag agc att ctg gtg tgg ctc aca gag atg	1864
Glu Phe Glu Gly Thr Arg Glu Ser Ile Leu Val Trp Leu Thr Glu Met	
456 461 466 471	
gac ctg cag ctg acc aac gtg gag cac ttc tca gag agt gac gcc gat	1912
Asp Leu Gln Leu Thr Asn Val Glu His Phe Ser Glu Ser Asp Ala Asp	
472 477 482 487	
gac aag atg cgc caa ctg aat ggc ttc caa cag gaa att aca tta aat	1960
Asp Lys Met Arg Gln Leu Asn Gly Phe Gln Gln Glu Ile Thr Leu Asn	
488 493 498 503	
acc aac aag att gat cag ctc att gtg ttt ggg gag cag ctg att cag	2008
Thr Asn Lys Ile Asp Gln Leu Ile Val Phe Gly Glu Gln Leu Ile Gln	
504 509 514 519	
aag agc gag ccc ctg gat gct gtg ctg att gag gat gag ctg gag gaa	2056
Lys Ser Glu Pro Leu Asp Ala Val Leu Ile Glu Asp Glu Leu Glu Glu	
520 525 530 535	
ctc cac cgc tac tgc cag gag gtg ttt gga agg gtc tcc cgg ttc cac	2104
Leu His Arg Tyr Cys Gln Glu Val Phe Gly Arg Val Ser Arg Phe His	
536 541 546 551	
cgg cgg ctc acc tcc tgc act ccg ggc ttg gaa gat gaa aag gag gcc	2152
Arg Arg Leu Thr Ser Cys Thr Pro Gly Leu Glu Asp Glu Lys Glu Ala	
552 557 562 567	
tct gag aat gaa aca gac atg gaa gac ccc aga gaa atc cag act gat	2200
Ser Glu Asn Glu Thr Asp Met Glu Asp Pro Arg Glu Ile Gln Thr Asp	
568 573 578 583	
tct tgg cgt aaa cgg gga gag agc gag gaa ccg tca tct cct cag tcc	2248
Ser Trp Arg Lys Arg Gly Glu Ser Glu Glu Pro Ser Ser Pro Gln Ser	
584 589 594 599	
ctg tgt cat cta gtg gcc cca ggg cac gag cgg tct ggc tgc gag acc	2296
Leu Cys His Leu Val Ala Pro Gly His Glu Arg Ser Gly Cys Glu Thr	
600 605 610 615	
cct gtc agc gtg gac tcc atc ccc ctg gag tgg gac cac aca ggc gac	2344

Pro Val Ser Val Asp Ser Ile Pro Leu Glu Trp Asp His Thr Gly Asp	
616 621 626 631	
gtg ggg ggc tcc tcc tct cac gaa gag gac gag gag ggc cca tac tac	2392
Val Gly Gly Ser Ser Ser His Glu Glu Asp Glu Glu Gly Pro Tyr Tyr	
632 637 642 647	
agc gca ctg tca ggt aaa tcc att tcg gat ggc cac tcg tgg cat gtt	2440
Ser Ala Leu Ser Gly Lys Ser Ile Ser Asp Gly His Ser Trp His Val	
648 653 658 663	
ccc gac agc cct tcc tgt ccc gag cat cac tac aag caa atg gaa ggt	2488
Pro Asp Ser Pro Ser Cys Pro Glu His His Tyr Lys Gln Met Glu Gly	
664 669 674 679	
gac agg aat gtt cca cct gtt ccc cct gcg tcc agc acc cct tat aaa	2536
Asp Arg Asn Val Pro Pro Val Pro Pro Ala Ser Ser Thr Pro Tyr Lys	
680 685 690 695	
cca ccc tat gga aag cta cta tta cct cca ggc acg gat ggt ggc aaa	2584
Pro Pro Tyr Gly Lys Leu Leu Leu Pro Pro Gly Thr Asp Gly Gly Lys	
696 701 706 711	
gaa ggc ccg cga gtc ctg aat ggc aac cca cag cag gaa gac ggg gga	2632
Glu Gly Pro Arg Val Leu Asn Gly Asn Pro Gln Gln Glu Asp Gly Gly	
712 717 722 727	
ctg gcc ggt atc aca gag cag cag tca ggt gcc ttc gac aga tgg gag	2680
Leu Ala Gly Ile Thr Glu Gln Gln Ser Gly Ala Phe Asp Arg Trp Glu	
728 733 738 743	
atg att caa gca cag gag ctt cac aat aag ctc aaa ata aaa caa aat	2728
Met Ile Gln Ala Gln Glu Leu His Asn Lys Leu Lys Ile Lys Gln Asn	
744 749 754 759	
ttg caa cag ctg aac tct gat atc agc gcc atc act act tgg ctg aaa	2776
Leu Gln Gln Leu Asn Ser Asp Ile Ser Ala Ile Thr Thr Trp Leu Lys	
760 765 770 775	
aaa act gaa gca gag ctg gaa atg tta aag atg gca aag cct ccc tct	2824
Lys Thr Glu Ala Glu Leu Glu Met Leu Lys Met Ala Lys Pro Pro Ser	
776 781 786 791	
gat atc cag gaa ata gaa ctg aga gtg aag aga ctg cag gag ata ctg	2872
Asp Ile Gln Glu Ile Glu Leu Arg Val Lys Arg Leu Gln Glu Ile Leu	
792 797 802 807	
aaa gcc ttt gac act tac aag gca tta gtg gtc tct gtc aac gtg agc	2920
Lys Ala Phe Asp Thr Tyr Lys Ala Leu Val Val Ser Val Asn Val Ser	
808 813 818 823	
agc aag gaa ttt ctg caa acc gag agc ccc gaa tcc aca gag ctc caa	2968
Ser Lys Glu Phe Leu Gln Thr Glu Ser Pro Glu Ser Thr Glu Leu Gln	
824 829 834 839	
agt aga ctc cgc cag ctg agc ctg ctc tgg gaa gca gca cag ggc gca	3016
Ser Arg Leu Arg Gln Leu Ser Leu Leu Trp Glu Ala Ala Gln Gly Ala	

840	845	850	855	
gtg gac agc tgg aga ggg ggc tta cga cag tcg ctc atg cag tgc cag				3064
Val Asp Ser Trp Arg Gly Gly Leu Arg Gln Ser Leu Met Gln Cys Gln				
856	861	866	871	
gac ttc cac cag ttg agt caa aat ctg ctg ctg tgg tta gcg agt gcc				3112
Asp Phe His Gln Leu Ser Gln Asn Leu Leu Leu Trp Leu Ala Ser Ala				
872	877	882	887	
aag aac cgg agg cag aag gct cat gtc acc gat cca aag gca gac ccc				3160
Lys Asn Arg Arg Gln Lys Ala His Val Thr Asp Pro Lys Ala Asp Pro				
888	893	898	903	
cgg gct ctc cta gag tgt cgg agg gaa cta atg caa ctg gaa aag gag				3208
Arg Ala Leu Leu Glu Cys Arg Arg Glu Leu Met Gln Leu Glu Lys Glu				
904	909	914	919	
ctg gta gaa cgt caa cct caa gtg gac atg tta cag gag att tca aac				3256
Leu Val Glu Arg Gln Pro Gln Val Asp Met Leu Gln Glu Ile Ser Asn				
920	925	930	935	
agc ctt ctc att aag gga cat gga gaa gac tgt att gaa gct gaa gaa				3304
Ser Leu Leu Ile Lys Gly His Gly Glu Asp Cys Ile Glu Ala Glu Glu				
936	941	946	951	
aag gtg cat gtt att gag aag aaa ctc aaa cag tta cgg gag caa gtg				3352
Lys Val His Val Ile Glu Lys Lys Leu Lys Gln Leu Arg Glu Gln Val				
952	957	962	967	
tcc caa gat tta atg gcc ttg cag gga acc cag aac cca gcc tca ccc				3400
Ser Gln Asp Leu Met Ala Leu Gln Gly Thr Gln Asn Pro Ala Ser Pro				
968	973	978	983	
ctg ccc agc ttc gac gag gta gac tcg ggg gac cag cct cct gca aca				3448
Leu Pro Ser Phe Asp Glu Val Asp Ser Gly Asp Gln Pro Pro Ala Thr				
984	989	994	999	
tcc gtg cca gct ccc cga gca aag cag ttc aga gca gtg aga act aca				3496
Ser Val Pro Ala Pro Arg Ala Lys Gln Phe Arg Ala Val Arg Thr Thr				
1000	1005	1010	1015	
gaa ggc gag gag gag aca gag agc agg gtc ccc ggc agc aca cgg cca				3544
Glu Gly Glu Glu Glu Thr Glu Ser Arg Val Pro Gly Ser Thr Arg Pro				
1016	1021	1026	1031	
cag cgc tcc ttc ctc tca agg gtg gtc cgg gca gcc cta ccc ctg cag				3592
Gln Arg Ser Phe Leu Ser Arg Val Val Arg Ala Ala Leu Pro Leu Gln				
1032	1037	1042	1047	
ctg ctc ctc ctg ctg ctg ctg ctc ctg gcc tgc ctg ctg ccc tcc tcc				3640
Leu Leu Leu Leu Leu Leu Leu Leu Leu Ala Cys Leu Leu Pro Ser Ser				
1048	1053	1058	1063	
gaa gaa gac tac agc tgc act cag gcc aac aac ttt gcc cgg tcc ttt				3688
Glu Glu Asp Tyr Ser Cys Thr Gln Ala Asn Asn Phe Ala Arg Ser Phe				
1064	1069	1074	1079	

tac ccc atg ctg agg tac acc aat ggg cca ccc ccc aca tag agggcat	3737
Tyr Pro Met Leu Arg Tyr Thr Asn Gly Pro Pro Pro Thr *	
1080	1085 1090
agctggccac agtgctacac cacctgcctg attgccaagg gtgcccagca cgtggcccca	3797
gaccaatctg agtgacttag tgttggcaag gtccccgggac ctgtgcagac ttcttctggg	3857
cttacacagc acgggctccc tggagcccag ggcagctttc agattgtgtt cctccccagg	3917
agcaggggaac ctgtgtggca ggtgccccgg gtactttggc agaactagtt gattagttta	3977
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tgtaaaacag cattattata atgtaggtat ggtcaatgag cagtgggtgc catcacatat	4097
attatagaag caagcgagca cattccaccc tagaaatggt tcagaaactc ataggcacc	4157
ttagctgatg gaaacaatca atcatattta atacgcttag aatcagtttt actccaatca	4217
gctggcaatt ttgagctgcc ggttatacac caaaatgttc tgttcagtac ctagctctgc	4277
tcttttatat tgctttaaat ttttaaagaa attatattgc atggatgtgg ttatttgtgc	4337
atatttttta acaatgcca atctgtatga ataatgtaaa cttcgatttt tttttaaaaa	4397
aattagattt tagctggagc ttttgactaa tgtaaagtaa atgccaaact accgacttga	4457
tagggatggt ttgtgaagtt aattttctaa gactttttca catccaaagt gatgctttgc	4517
tttgggtttt aactgtttgg ccacggcggg ggtgggggcg gggggttggg acaaaaaactt	4577
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cgcgcccgcg ggccatgcc cactgactct aagtgggcac tgccccggct ccgggagggc 180  
gagaccgagc gccggcc atg gga agc ttc cag ctg gaa gac ttt gcg gcg 230



Met Gly Ser Phe Gln Leu Glu Asp Phe Ala Ala  
1 5

ggc tgg atc gga ggt gca gcc agt gtc atc gtc ggc cac cct ctg gac Gly Trp Ile Gly Gly Ala Ala Ser Val Ile Val Gly His Pro Leu Asp 12 17 22 27	278
aca gtc aag act cgc ctg cag gct ggc gtt ggc tac gga aac acc ctc Thr Val Lys Thr Arg Leu Gln Ala Gly Val Gly Tyr Gly Asn Thr Leu 28 33 38 43	326
agc tgc atc cgc gtg gtg tac agg agg gag agt atg ttc ggc ttc ttc Ser Cys Ile Arg Val Val Tyr Arg Arg Glu Ser Met Phe Gly Phe Phe 44 49 54 59	374
aag ggc atg tcc ttc ccc ctc gcc agc att gcc gtc tac aac tcc gtg Lys Gly Met Ser Phe Pro Leu Ala Ser Ile Ala Val Tyr Asn Ser Val 60 65 70 75	422
gtg ttt ggg gtc ttc agt aac acg cag cgg ttc ctc agc cag cac cgc Val Phe Gly Val Phe Ser Asn Thr Gln Arg Phe Leu Ser Gln His Arg 76 81 86 91	470
tgc ggg gag cca gag gcc agt cct ccc cgc acg ctg tca gac ctg ctc Cys Gly Glu Pro Glu Ala Ser Pro Pro Arg Thr Leu Ser Asp Leu Leu 92 97 102 107	518
ctg gcc agc atg gtg gcc ggc gtg gtc tct gtc ggg ctg gga ggg ccc Leu Ala Ser Met Val Ala Gly Val Val Ser Val Gly Leu Gly Gly Pro 108 113 118 123	566
gtg gac ctc atc aag atc cgg ttg cag atg cag aca caa ccg ttt cgg Val Asp Leu Ile Lys Ile Arg Leu Gln Met Gln Thr Gln Pro Phe Arg 124 129 134 139	614
gac gcc aac ctc ggt ttg aag tcc agg gca gtg gct cct gca gag cag Asp Ala Asn Leu Gly Leu Lys Ser Arg Ala Val Ala Pro Ala Glu Gln 140 145 150 155	662
cca gca tac cag ggg cca gtg cac tgc att aca acc att gtg agg aat Pro Ala Tyr Gln Gly Pro Val His Cys Ile Thr Thr Ile Val Arg Asn 156 161 166 171	710
gag ggc ctg gcg ggg cta tac cgg ggg gcc agt gcc atg ctg ctg agg Glu Gly Leu Ala Gly Leu Tyr Arg Gly Ala Ser Ala Met Leu Leu Arg 172 177 182 187	758
gat gtc cca ggc tat tgc ctc tac ttc atc ccc tac gtg ttc ctg agt Asp Val Pro Gly Tyr Cys Leu Tyr Phe Ile Pro Tyr Val Phe Leu Ser 188 193 198 203	806
gag tgg atc aca cct gag gcc tgc aca ggc ccc agc ccc tgt gct gtg Glu Trp Ile Thr Pro Glu Ala Cys Thr Gly Pro Ser Pro Cys Ala Val 204 209 214 219	854
tgg ctg gcg ggc ggc atg gca gga gca att tct tgg ggg aca gcg act Trp Leu Ala Gly Gly Met Ala Gly Ala Ile Ser Trp Gly Thr Ala Thr	902

220	225	230	235	
cct atg gat gtc gtg aaa agt cga ctc caa gct gat ggg gtt tat tta				950
Pro Met Asp Val Val Lys Ser Arg Leu Gln Ala Asp Gly Val Tyr Leu				
236	241	246	251	
aac aaa tat aaa ggt gtc ctg gac tgt atc tcc cag agt tac cag aag				998
Asn Lys Tyr Lys Gly Val Leu Asp Cys Ile Ser Gln Ser Tyr Gln Lys				
252	257	262	267	
gaa ggt ctt aaa gtg ttt ttc aga ggc atc act gtg aac gcg gtg cgg				1046
Glu Gly Leu Lys Val Phe Phe Arg Gly Ile Thr Val Asn Ala Val Arg				
268	273	278	283	
ggc ttc ccc atg agt gcg gcc atg ttc ctt ggg tac gag ctg tcg ctg				1094
Gly Phe Pro Met Ser Ala Ala Met Phe Leu Gly Tyr Glu Leu Ser Leu				
284	289	294	299	
cag gct atc cgc ggg gac cac gca gtg acg agc cca taa gcgccaggtc				1143
Gln Ala Ile Arg Gly Asp His Ala Val Thr Ser Pro *				
300	305	310		
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aagggtgacg cgagctctgc cctttaaccg gaaacgtctc cctgctcacc ccacccccgc	180
gcagacgcag tgctgagcac acagctaccg gacaaagagt gacgcccgga gctggagtt	239
atg gcg gct acg gag ccg atc ttg gcg gcc act ggg agt ccc gcg gcg	287
Met Ala Ala Thr Glu Pro Ile Leu Ala Ala Thr Gly Ser Pro Ala Ala	
1 5 10 15	
gtg cca ccg gag aaa ctg gaa gga gcc ggt tcg agc tca gcc cct gag	335
Val Pro Pro Glu Lys Leu Glu Gly Ala Gly Ser Ser Ser Ala Pro Glu	
17 22 27 32	

cgt aac tgt gtg ggc tcc tcg ctg cca gag gcc tca ccg cct gcc cct	383
Arg Asn Cys Val Gly Ser Ser Leu Pro Glu Ala Ser Pro Pro Ala Pro	
33 38 43 48	
gag cct tcc agt ccc aac gcc gcg gtc cct gaa gcc atc cct acg ccc	431
Glu Pro Ser Ser Pro Asn Ala Ala Val Pro Glu Ala Ile Pro Thr Pro	
49 54 59 64	
cga gct gcg gcc tcc gcg gcc ctg gag ctg cct ctc ggg ccc gca ccc	479
Arg Ala Ala Ala Ser Ala Ala Leu Glu Leu Pro Leu Gly Pro Ala Pro	
65 70 75 80	
gtg agc gta gcg cct cag gcc gaa gct gaa gcg cgc tcc aca cca ggc	527
Val Ser Val Ala Pro Gln Ala Glu Ala Glu Ala Arg Ser Thr Pro Gly	
81 86 91 96	
ccc gcc ggc tct aga ctc ggt ccc gag acg ttc cgc cag cgt ttc cgg	575
Pro Ala Gly Ser Arg Leu Gly Pro Glu Thr Phe Arg Gln Arg Phe Arg	
97 102 107 112	
cag ttc cgc tac cag gat gcg gcg ggt ccc cgg gag gct ttc cgg cag	623
Gln Phe Arg Tyr Gln Asp Ala Ala Gly Pro Arg Glu Ala Phe Arg Gln	
113 118 123 128	
ctg cgg gag ctg tcc cgc cag tgg ctg cgg cct gac atc cgc acc aag	671
Leu Arg Glu Leu Ser Arg Gln Trp Leu Arg Pro Asp Ile Arg Thr Lys	
129 134 139 144	
gag cag atc gtg gag atg ctg gtg caa gag cag ctg ctc gcc atc ctg	719
Glu Gln Ile Val Glu Met Leu Val Gln Glu Gln Leu Leu Ala Ile Leu	
145 150 155 160	
ccc gag gcg gct cgg gcc cgg cgg atc cgc cgc cgc acg gat gtg cgc	767
Pro Glu Ala Ala Arg Ala Arg Arg Ile Arg Arg Arg Thr Asp Val Arg	
161 166 171 176	
atc act ggc tga gcg gtggagctgc gggcgccag ggcggggcgc tctgtgcgga	822
Ile Thr Gly *	
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atgagttttg gcaaaaaaaaa aaaaa	907

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Gly Lys Lys Lys Ala Lys Ser Lys Glu Thr Ala Gly Leu Val Glu Gly		
7 12 17 22		
gag ccg acg ggc gcg ggc ggc ggg agc ctc tca gcg tcc cgg gct ccc	148	
Glu Pro Thr Gly Ala Gly Gly Gly Ser Leu Ser Ala Ser Arg Ala Pro		
23 28 33 38		
gca cgc agg ctg gtc ttc cac gcg cag ctg gcg cac ggt agt gcc acg	196	
Ala Arg Arg Leu Val Phe His Ala Gln Leu Ala His Gly Ser Ala Thr		
39 44 49 54		
ggc cga gtg gag ggc ttc tcc agc atc cag gag ctc tac gcc cag atc	244	
Gly Arg Val Glu Gly Phe Ser Ser Ile Gln Glu Leu Tyr Ala Gln Ile		
55 60 65 70		
gcg ggc gcg ttt gaa atc tcg ccg tcg gag atc tta tat tgc act tta	292	
Ala Gly Ala Phe Glu Ile Ser Pro Ser Glu Ile Leu Tyr Cys Thr Leu		
71 76 81 86		
aac aca cct aaa att gac atg gaa aga ctc tta gga gga caa cta gga	340	
Asn Thr Pro Lys Ile Asp Met Glu Arg Leu Leu Gly Gly Gln Leu Gly		
87 92 97 102		
cta gaa gat ttc ata ttt gcc cat gtg aaa gga atc gaa aaa gaa gtg	388	
Leu Glu Asp Phe Ile Phe Ala His Val Lys Gly Ile Glu Lys Glu Val		
103 108 113 118		
aat gtg tat aaa tct gag gat tca ctt ggt ctc acc att aca gat aat	436	
Asn Val Tyr Lys Ser Glu Asp Ser Leu Gly Leu Thr Ile Thr Asp Asn		
119 124 129 134		
ggt gtt ggc tat gct ttt ata aag aga att aaa gat ggt ggt gtt att	484	
Gly Val Gly Tyr Ala Phe Ile Lys Arg Ile Lys Asp Gly Gly Val Ile		
135 140 145 150		
gac tca gtt aaa aca atc tgt gtt ggg gat cat att gaa tcc ata aat	532	
Asp Ser Val Lys Thr Ile Cys Val Gly Asp His Ile Glu Ser Ile Asn		
151 156 161 166		
gga gaa aat att gtt ggg tgg cgt cac tat gat gtt gct aag aag tta	580	
Gly Glu Asn Ile Val Gly Trp Arg His Tyr Asp Val Ala Lys Lys Leu		
167 172 177 182		
aag gaa tta aaa aag gag gaa ctc ttt act atg aag tta ata gaa cct	628	
Lys Glu Leu Lys Lys Glu Glu Leu Phe Thr Met Lys Leu Ile Glu Pro		
183 188 193 198		
aag aag gca ttt gaa ata gag ctg agg tca aag gct gga aag tca tca	676	
Lys Lys Ala Phe Glu Ile Glu Leu Arg Ser Lys Ala Gly/Lys Ser Ser		
199 204 209 214		
gga gaa aaa att ggt tgt gga agg gca aca ctt cgc ctg aga tca aaa	724	



gaa aat gat gaa aaa gat gaa aag gag caa gtt gct aat aaa ggg gag 330  
 Glu Asn Asp Glu Lys Asp Glu Lys Glu Gln Val Ala Asn Lys Gly Glu  
 20 25 30 35

ccc ttg gcc cta cct ttg aat gtt agt gaa tac tgt gtg cct aga gga 378  
 Pro Leu Ala Leu Pro Leu Asn Val Ser Glu Tyr Cys Val Pro Arg Gly  
 36 41 46 51

aac cgt agg cgg ttc cgc gtt agg cag ccc atc ctg cag tat aga tgg 426  
 Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln Tyr Arg Trp  
 52 57 62 67

gac ata atg cat agg ctt gga gag cca cag gca agg atg aga gag gag 474  
 Asp Ile Met His Arg Leu Gly Glu Pro Gln Ala Arg Met Arg Glu Glu  
 68 73 78 83

aat atg gaa agg att ggg gag gag gtg aga cag ctg atg gaa aag ctg 522  
 Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met Glu Lys Leu  
 84 89 94 99

agg gaa aag cag ttg agt cat agt ttg cgg gca gtc agc act gat ccc 570  
 Arg Glu Lys Gln Leu Ser His Ser Leu Arg Ala Val Ser Thr Asp Pro  
 100 105 110 115

cct cac cat gac cat cac gat gag ttt tgc ctt atg ccc tga atcctga 619  
 Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro \*  
 116 121 126

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cctttgtcgt aaacgttttg atgttaccta tttcttggtg gtctcctatt accagcttct 739

aaatgaatgt tggttttgac ccagtttgta agtttctgtc agcaggagag ttttacctat 799

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aaa 862

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 actggaaaat ctcccaaaca atttctgatt gattgggtca ggaagaatct tcccaagagt 180

ccaaatcctt cctttgaaaa agttccagta ggtagatact ggaaatgtag ggtagggta	240
atcaagtctg aagatgatgt cctggtagta tgccctacaa tcttaacaga agatggcatg	300
caagctcagc acctgggagc tacttttagcc ctttaccggt tagttaaagg gcagtcagtt	360
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Met Glu Thr Asn Lys Pro Arg Asp Leu Phe	
1 5	
att gcc aaa ctt ctg aat aaa ctg aaa cag cag caa <sup>3</sup> cag cag caa caa	519
Ile Ala Lys Leu Leu Asn Lys Leu Lys Gln Gln Gln Gln Gln Gln	
11 16 21 26	
cag cat tct gaa aat aag aga gaa aac tct gaa gat ccc gag gaa tct	567
Gln His Ser Glu Asn Lys Arg Glu Asn Ser Glu Asp Pro Glu Glu Ser	
27 32 37 42	
tgg gaa aat tta gtt tct gat gag gat ttt tct gca ctg tcc ttg gaa	615
Trp Glu Asn Leu Val Ser Asp Glu Asp Phe Ser Ala Leu Ser Leu Glu	
43 48 53 58	
tca gca aat gtg gaa gat ttg gaa cct gtt aga aac ctc ttt aga aag	663
Ser Ala Asn Val Glu Asp Leu Glu Pro Val Arg Asn Leu Phe Arg Lys	
59 64 69 74	
ttg caa agc aca cct aag tat cag aaa ctt cta aag gaa aga caa cag	711
Leu Gln Ser Thr Pro Lys Tyr Gln Lys Leu Leu Lys Glu Arg Gln Gln	
75 80 85 90	
cta cct gta ttt aaa cat cgg gac tca att gtt gaa act ctt aaa agg	759
Leu Pro Val Phe Lys His Arg Asp Ser Ile Val Glu Thr Leu Lys Arg	
91 96 101 106	
cat cgg gta gtg gtt gtg gca ggt gaa aca ggg agt ggt aaa agt act	807
His Arg Val Val Val Val Ala Gly Glu Thr Gly Ser Gly Lys Ser Thr	
107 112 117 122	
cag gta cca cat ttt cta ttg gaa gat ttg ctt cta aat gag tgg gaa	855
Gln Val Pro His Phe Leu Leu Glu Asp Leu Leu Leu Asn Glu Trp Glu	
123 128 133 138	
gca agt aaa tgt aac att gtc tgt acc caa ccc cga aga atc tca gca	903
Ala Ser Lys Cys Asn Ile Val Cys Thr Gln Pro Arg Arg Ile Ser Ala	
139 144 149 154	
gtt agt tta gcc aac aga gta tgt gat gaa ttg ggc tgt gaa aat gga	951
Val Ser Leu Ala Asn Arg Val Cys Asp Glu Leu Gly Cys Glu Asn Gly	
155 160 165 170	
cct gga gga agg aat tcc ttg tgt gga tat cag atc cgg atg gaa tct	999
Pro Gly Gly Arg Asn Ser Leu Cys Gly Tyr Gln Ile Arg Met Glu Ser	
171 176 181 186	

cga gct tgt gaa tct acc agg tta ctc tat tgt aca aca ggg gtt ttg	1047
Arg Ala Cys Glu Ser Thr Arg Leu Leu Tyr Cys Thr Thr Gly Val Leu	
187 192 197 202	
cta agg aaa ctt caa gaa gat ggt ctt cta agt aat gtg tct cat gtt	1095
Leu Arg Lys Leu Gln Glu Asp Gly Leu Leu Ser Asn Val Ser His Val	
203 208 213 218	
att gta gat gag gtt cat gaa aga agt gtc cag tca gac ttc cta cta	1143
Ile Val Asp Glu Val His Glu Arg Ser Val Gln Ser Asp Phe Leu Leu	
219 224 229 234	
att atc ttg aag gaa att tta cag aaa cgt tct gat cta cac ttg att	1191
Ile Ile Leu Lys Glu Ile Leu Gln Lys Arg Ser Asp Leu His Leu Ile	
235 240 245 250	
cta atg agt gcc act gtg gac agc gaa aaa ttt tct aca tat ttc aca	1239
Leu Met Ser Ala Thr Val Asp Ser Glu Lys Phe Ser Thr Tyr Phe Thr	
251 256 261 266	
cac tgc ccc att ctc aga att tca gga aga agt tat cct gtt gag gtt	1287
His Cys Pro Ile Leu Arg Ile Ser Gly Arg Ser Tyr Pro Val Glu Val	
267 272 277 282	
ttt cat ctt gaa gat ata ata gaa gaa aca ggc ttt gta ctg gaa aaa	1335
Phe His Leu Glu Asp Ile Ile Glu Glu Thr Gly Phe Val Leu Glu Lys	
283 288 293 298	
gac tca gaa tat tgt cag aaa ttt ctg gaa gag gaa gaa gaa gta acc	1383
Asp Ser Glu Tyr Cys Gln Lys Phe Leu Glu Glu Glu Glu Val Thr	
299 304 309 314	
att aat gtt aca agc aaa gca ggg gga ata aaa aaa tat cag gaa tac	1431
Ile Asn Val Thr Ser Lys Ala Gly Gly Ile Lys Lys Tyr Gln Glu Tyr	
315 320 325 330	
atc cca gtt cag act gga gca cat gct gat tta aat cca ttt tac caa	1479
Ile Pro Val Gln Thr Gly Ala His Ala Asp Leu Asn Pro Phe Tyr Gln	
331 336 341 346	
aag tac agc agc cgc act cag cat gct att cta tac atg aat cct cat	1527
Lys Tyr Ser Ser Arg Thr Gln His Ala Ile Leu Tyr Met Asn Pro His	
347 352 357 362	
aaa atc aac ctg gat ctc att ttg gaa ctt ctt gca tac tta gat aaa	1575
Lys Ile Asn Leu Asp Leu Ile Leu Glu Leu Leu Ala Tyr Leu Asp Lys	
363 368 373 378	
agt ccc caa ttc aga aat att gaa gga gca gta ttg atc ttt tta cca	1623
Ser Pro Gln Phe Arg Asn Ile Glu Gly Ala Val Leu Ile Phe Leu Pro	
379 384 389 394	
gga ctt gct cat att cag cag ttg tat gat ctt cta tca aat gat aga	1671
Gly Leu Ala His Ile Gln Gln Leu Tyr Asp Leu Leu Ser Asn Asp Arg	
395 400 405 410	
aga ttt tat tct gaa cga tat aaa gtg ata gct ctg cat tct att ctt	1719



Arg Phe Tyr Ser Glu Arg Tyr Lys Val Ile Ala Leu His Ser Ile Leu	
411 416 421 426	
tca acc caa gat caa gct gca gca ttc aca ctt ccc cct cca gga gtc	1767
Ser Thr Gln Asp Gln Ala Ala Ala Phe Thr Leu Pro Pro Pro Gly Val	
427 432 437 442	
agg aag att gtt tta gca acc aat att gca gag acg ggt atc act att	1815
Arg Lys Ile Val Leu Ala Thr Asn Ile Ala Glu Thr Gly Ile Thr Ile	
443 448 453 458	
cct gat gtt gta ttt gta att gat act gga aga aca aaa gaa aat aag	1863
Pro Asp Val Val Phe Val Ile Asp Thr Gly Arg Thr Lys Glu Asn Lys	
459 464 469 474	
tac cat gaa agc agt cag atg agt tct ttg gtg gag acg ttt gtc agt	1911
Tyr His Glu Ser Ser Gln Met Ser Ser Leu Val Glu Thr Phe Val Ser	
475 480 485 490	
aaa gcc agt gct ttg cag cgc cag gga aga gct ggg cgg gtc aga gat	1959
Lys Ala Ser Ala Leu Gln Arg Gln Gly Arg Ala Gly Arg Val Arg Asp	
491 496 501 506	
ggc ttc tgt ttc cga atg tac aca aga gaa aga ttt gaa ggc ttt atg	2007
Gly Phe Cys Phe Arg Met Tyr Thr Arg Glu Arg Phe Glu Gly Phe Met	
507 512 517 522	
gat tat tct gtt cct gaa atc tta cgt gta cct ttg gag gaa tta tgc	2055
Asp Tyr Ser Val Pro Glu Ile Leu Arg Val Pro Leu Glu Glu Leu Cys	
523 528 533 538	
ctt cat att atg aaa tgt aat ctt ggt tct cct gaa gat ttc ctc tcc	2103
Leu His Ile Met Lys Cys Asn Leu Gly Ser Pro Glu Asp Phe Leu Ser	
539 544 549 554	
aaa gcc tta gat cct cct cag ctc caa gtg atc agc aat gca atg aat	2151
Lys Ala Leu Asp Pro Pro Gln Leu Gln Val Ile Ser Asn Ala Met Asn	
555 560 565 570	
ttg ctc cga aaa att gga gct tgt gaa tta aat gag cct aaa ctg act	2199
Leu Leu Arg Lys Ile Gly Ala Cys Glu Leu Asn Glu Pro Lys Leu Thr	
571 576 581 586	
ccg ttg ggc caa cac ctt gca gct tta cct gtg aat gtc aag att ggc	2247
Pro Leu Gly Gln His Leu Ala Ala Leu Pro Val Asn Val Lys Ile Gly	
587 592 597 602	
aag atg ctt att ttt ggt gcc ata ttt ggc tgc ctt gac cca gtg gca	2295
Lys Met Leu Ile Phe Gly Ala Ile Phe Gly Cys Leu Asp Pro Val Ala	
603 608 613 618	
aca cta gct gca gtt atg aca gag aag tct cct ttt acc aca cca att	2343
Thr Leu Ala Ala Val Met Thr Glu Lys Ser Pro Phe Thr Thr Pro Ile	
619 624 629 634	
ggt cga aaa gat gaa gca gat ctt gca aaa tca gct ttg gcc atg gcg	2391
Gly Arg Lys Asp Glu Ala Asp Leu Ala Lys Ser Ala Leu Ala Met Ala	

635	640	645	650	
gat tca gac cac ctg	acg atc tac aat gca	tat cta gga tgg aag aaa		2439
Asp Ser Asp His Leu	Thr Ile Tyr Asn Ala	Tyr Leu Gly Trp Lys Lys		
651	656	661	666	
gca cga caa gaa gga	ggt tat cgt tct gaa	atc aca tac tgc cgg agg		2487
Ala Arg Gln Glu Gly	Gly Tyr Arg Ser Glu	Ile Thr Tyr Cys Arg Arg		
667	672	677	682	
aac ttt ctt aat aga	aca tca ctg tta acc	cta gag gat gta aag cag		2535
Asn Phe Leu Asn Arg	Thr Ser Leu Leu Thr	Leu Glu Asp Val Lys Gln		
683	688	693	698	
gag tta ata aag ttg	gtt aag gca gca gga	ttt tca tct tcc aca act		2583
Glu Leu Ile Lys Leu	Val Lys Ala Ala Gly	Phe Ser Ser Ser Thr Thr		
699	704	709	714	
tct acc agc tgg gaa	gga aac aga gcc tca	cag acc ctc tca ttc caa		2631
Ser Thr Ser Trp Glu	Gly Asn Arg Ala Ser	Gln Thr Leu Ser Phe Gln		
715	720	725	730	
gaa att gcc ctt ctt	aaa gct gta ctg gtg	gct gga ctg tat gac aat		2679
Glu Ile Ala Leu Leu	Lys Ala Val Leu Val	Ala Gly Leu Tyr Asp Asn		
731	736	741	746	
gtg ggg aag ata atc	tat aca aag tca gtg	gat gtt aca gaa aaa ttg		2727
Val Gly Lys Ile Ile	Tyr Thr Lys Ser Val	Asp Val Thr Glu Lys Leu		
747	752	757	762	
gct tgc att gtg gag	acg gcc caa ggc aaa	gca caa gta cac cca tcc		2775
Ala Cys Ile Val Glu	Thr Ala Gln Gly Lys	Ala Gln Val His Pro Ser		
763	768	773	778	
tca gta aat cga gat	ttg caa act cat gga	tgg ctc tta tac cag gag		2823
Ser Val Asn Arg Asp	Leu Gln Thr His Gly	Trp Leu Leu Tyr Gln Glu		
779	784	789	794	
aag ata agg tat gcc	aga gtg tat ttg aga	gaa act acc cta ata acc		2871
Lys Ile Arg Tyr Ala	Arg Val Tyr Leu Arg	Glu Thr Thr Leu Ile Thr		
795	800	805	810	
cct ttt cca gtt tta	ctt ttt ggt ggt gat	ata gaa gtt cag cac cga		2919
Pro Phe Pro Val Leu	Leu Phe Gly Gly Asp	Ile Glu Val Gln His Arg		
811	816	821	826	
gaa cgt ctt ctt tct	att gat ggc tgg atc	tat ttt cag gcc cct gta		2967
Glu Arg Leu Leu Ser	Ile Asp Gly Trp Ile	Tyr Phe Gln Ala Pro Val		
827	832	837	842	
aag ata gct gtc att	ttc aag cag ctg aga	gtt ctc att gat tca gtt		3015
Lys Ile Ala Val Ile	Phe Lys Gln Leu Arg	Val Leu Ile Asp Ser Val		
843	848	853	858	
tta aga aaa aag ctt	gaa aat cca aag atg	tcc ctt gaa aat gac aag		3063
Leu Arg Lys Lys Leu	Glu Asn Pro Lys Met	Ser Leu Glu Asn Asp Lys		
859	864	869	874	

att ctg cag atc att acg gaa ttg ata aaa aca gag aat aac tga aac 3111  
 Ile Leu Gln Ile Ile Thr Glu Leu Ile Lys Thr Glu Asn Asn \*  
 875 880 885

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aaaatgggtc atcacattaa gtatttcatt acttaaaatg ttggtactag ccattaactt 3231

aaagggtggtg ggaaaaaagc acatacttta aacatgtata attttctagt tccttttttaa 3291

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aaaaaaaaa a 3362

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gagc atg agc ggg cag cgc gtg gac gtc aag gtg gtg atg ctg ggc aag 169  
 Met Ser Gly Gln Arg Val Asp Val Lys Val Met Leu Gly Lys  
 1 5 10

gag tac gtg ggc aag act agc ctg gtg gag cgc tac gtg cac gac cgc 217  
 Glu Tyr Val Gly Lys Thr Ser Leu Val Glu Arg Tyr Val His Asp Arg  
 16 21 26 31

ttt ctg gtg ggg cct tat cag aac acc atc ggg gcc gcc ttc gtg gcc 265  
 Phe Leu Val Gly Pro Tyr Gln Asn Thr Ile Gly Ala Ala Phe Val Ala  
 32 37 42 47

aag gtg atg tcg gtc gga gac cgg act gtg aca tta ggt att tgg gac 313  
 Lys Val Met Ser Val Gly Asp Arg Thr Val Thr Leu Gly Ile Trp Asp  
 48 53 58 63

aca gca ggc tct gag cgc tat gag gcc atg agt aga atc tac tat cgg 361  
 Thr Ala Gly Ser Glu Arg Tyr Glu Ala Met Ser Arg Ile Tyr Tyr Arg  
 64 69 74 79

ggg gcc aag gct gcc atc gtc tgc tat gac ctc aca gac agc agc agc 409  
 Gly Ala Lys Ala Ala Ile Val Cys Tyr Asp Leu Thr Asp Ser/Ser Ser  
 80 85 90 95

ttt gag cga gca aag ttc tgg gtg aag gaa ctg cgc agc cta gag gag 457

Phe	Glu	Arg	Ala	Lys	Phe	Trp	Val	Lys	Glu	Leu	Arg	Ser	Leu	Glu	Glu		
96					101					106					111		
ggc	tgc	caa	atc	tac	tta	tgt	ggc	acc	aag	agt	gac	ctg	ctg	gaa	gaa	505	
Gly	Cys	Gln	Ile	Tyr	Leu	Cys	Gly	Thr	Lys	Ser	Asp	Leu	Leu	Glu	Glu		
112					117					122					127		
gac	cgg	agg	cgt	cga	cgt	gtg	gac	ttc	cac	gac	gtc	cag	gac	tat	gca	553	
Asp	Arg	Arg	Arg	Arg	Arg	Val	Asp	Phe	His	Asp	Val	Gln	Asp	Tyr	Ala		
128					133					138					143		
gac	aat	atc	aaa	gct	cag	ctc	ttt	gaa	aca	tcc	agc	aag	aca	ggc	cag	601	
Asp	Asn	Ile	Lys	Ala	Gln	Leu	Phe	Glu	Thr	Ser	Ser	Lys	Thr	Gly	Gln		
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agt	gtg	gac	gag	ctc	ttc	cag	aaa	gtg	gca	gag	gat	tac	gtc	agt	gtg	649	
Ser	Val	Asp	Glu	Leu	Phe	Gln	Lys	Val	Ala	Glu	Asp	Tyr	Val	Ser	Val		
160					165					170					175		
gct	gcc	ttc	cag	gtg	atg	aca	gag	gac	aag	ggc	gtg	gat	ctg	ggc	cag	697	
Ala	Ala	Phe	Gln	Val	Met	Thr	Glu	Asp	Lys	Gly	Val	Asp	Leu	Gly	Gln		
176					181					186					191		
aag	cca	aac	ccc	tac	ttc	tac	agc	tgt	tgt	cat	cac	tga	gtcagcactc			746	
Lys	Pro	Asn	Pro	Tyr	Phe	Tyr	Ser	Cys	Cys	His	His	*					
192					197					202							
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tgtgctggcc	catggaacgg	agacagcatt	gggctgactg	tgggcatgag	gagggataag											926	
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ttcttgagc	tggtggtggc		120
ggctgaggcg	gc	atg	gat
ctc	agc	gag	ctg
gag	aga	gac	aat
aca	ggc		
Met	Asp	Leu	Ser
Glu	Leu	Glu	Arg
Asp	Asn	Thr	Gly
1		5	10
cgc	tgt	cgc	ctg
agt	tcg	cct	gtg
ccc	gcg	gtg	tgc
cgc	aag	gag	cct
			216

Arg	Cys	Arg	Leu	Ser	Ser	Pro	Val	Pro	Ala	Val	Cys	Arg	Lys	Glu	Pro	
13					18					23					28	
tgc	gtc	ctg	ggc	gtc	gat	gag	gcg	ggc	agg	ggc	ccc	gtg	ctg	ggc	ccc	264
Cys	Val	Leu	Gly	Val	Asp	Glu	Ala	Gly	Arg	Gly	Pro	Val	Leu	Gly	Pro	
29					34					39					44	
atg	gtc	tac	gcc	atc	tgt	tat	tgt	ccc	ctg	cct	cgc	ctg	gca	gat	ctg	312
Met	Val	Tyr	Ala	Ile	Cys	Tyr	Cys	Pro	Leu	Pro	Arg	Leu	Ala	Asp	Leu	
45					50					55					60	
gag	gcg	ctg	aaa	gtg	gca	gac	tca	aag	acc	cta	ttg	gag	agc	gag	cgg	360
Glu	Ala	Leu	Lys	Val	Ala	Asp	Ser	Lys	Thr	Leu	Leu	Glu	Ser	Glu	Arg	
61					66					71					76	
gaa	agg	ctg	ttt	gcg	aaa	atg	gag	gac	acg	gac	ttt	gtc	ggc	tgg	gcg	408
Glu	Arg	Leu	Phe	Ala	Lys	Met	Glu	Asp	Thr	Asp	Phe	Val	Gly	Trp	Ala	
77					82					87					92	
ctg	gat	gtg	ctg	tct	cca	aac	ctc	atc	tct	acc	agc	atg	ctt	ggg	cgg	456
Leu	Asp	Val	Leu	Ser	Pro	Asn	Leu	Ile	Ser	Thr	Ser	Met	Leu	Gly	Arg	
93					98					103					108	
gtc	aaa	tac	aac	ctg	aac	tcc	ctg	tca	cat	gat	aca	gcc	act	ggg	ctt	504
Val	Lys	Tyr	Asn	Leu	Asn	Ser	Leu	Ser	His	Asp	Thr	Ala	Thr	Gly	Leu	
109					114					119					124	
ata	cag	tat	gca	ttg	gac	cag	ggc	gtg	aac	gtc	acc	cag	gta	ttc	gtg	552
Ile	Gln	Tyr	Ala	Leu	Asp	Gln	Gly	Val	Asn	Val	Thr	Gln	Val	Phe	Val	
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gac	acc	gta	ggg	atg	cca	gag	aca	tac	cag	gcg	cgg	ctg	cag	caa	agt	600
Asp	Thr	Val	Gly	Met	Pro	Glu	Thr	Tyr	Gln	Ala	Arg	Leu	Gln	Gln	Ser	
141					146					151					156	
ttt	ccc	ggg	att	gag	gtg	acg	gtc	aag	gcc	aaa	gca	gat	gcc	ctc	tac	648
Phe	Pro	Gly	Ile	Glu	Val	Thr	Val	Lys	Ala	Lys	Ala	Asp	Ala	Leu	Tyr	
157					162					167					172	
ccg	gtg	gtt	agt	gct	gcc	agc	atc	tgt	gcc	aag	gtg	gcc	cgg	gac	cag	696
Pro	Val	Val	Ser	Ala	Ala	Ser	Ile	Cys	Ala	Lys	Val	Ala	Arg	Asp	Gln	
173					178					183					188	
gcc	gtg	aag	aaa	tgg	cag	ttc	gtg	gag	aaa	ctg	cag	gac	ttg	gat	act	744
Ala	Val	Lys	Lys	Trp	Gln	Phe	Val	Glu	Lys	Leu	Gln	Asp	Leu	Asp	Thr	
189					194					199					204	
gat	tat	ggc	tca	ggc	tac	ccc	aat	gat	ccc	aag	aca	aaa	gcg	tgg	ttg	792
Asp	Tyr	Gly	Ser	Gly	Tyr	Pro	Asn	Asp	Pro	Lys	Thr	Lys	Ala	Trp	Leu	
205					210					215					220	
aag	gag	cac	gtg	gag	cct	gtg	ttc	ggc	ttc	ccc	cag	ttt	gtc	cgg	ttc	840
Lys	Glu	His	Val	Glu	Pro	Val	Phe	Gly	Phe	Pro	Gln	Phe	Val	Arg	Phe	
221					226					231					236	
agc	tgg	cgc	acg	gcc	cag	acc	atc	ctg	gag	aaa	gag	gcg	gaa	gat	gtt	888
Ser	Trp	Arg	Thr	Ala	Gln	Thr	Ile	Leu	Glu	Lys	Glu	Ala	Glu	Asp	Val	

237	242	247	252	
ata tgg gag gac tca gca tcc gag aat cag gag gga ctc agg aag atc				936
Ile Trp Glu Asp Ser Ala Ser Glu Asn Gln Glu Gly Leu Arg Lys Ile				
253	258	263	268	
aca tcc tac ttc ctc aat gaa ggg tcc caa gcc cgt ccc cgt tct tcc				984
Thr Ser Tyr Phe Leu Asn Glu Gly Ser Gln Ala Arg Pro Arg Ser Ser				
269	274	279	284	
cac cga tat ttc ctg gaa cgc ggc ctg gag tca gca acc agc ctc tag				1032
His Arg Tyr Phe Leu Glu Arg Gly Leu Glu Ser Ala Thr Ser Leu *				
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	Met Ala His Val Gly Ser Arg Lys Arg			
	1 5			
tcg agg agt cgc agc cgg tcc cgg gga cgg ggg tcg gaa aag aga aag				158
Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser Glu Lys Arg Lys				
10 15 20 25				
aag aag agc agg aaa gac acc tcg agg aac tgc tcg gcc tcc aca tcc				206
Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser Ala Ser Thr Ser				
26 31 36 41				
caa ggt cgc aag gcc agc acg gcc cct ggg gcg gag gag aga agc aag				254
Gln Gly Arg Lys Ala Ser Thr Ala Pro Gly Ala Glu Glu Arg Ser Lys				
42 47 52 57				
cag aag gcc cgg agg aga aca aga tcc agc tcc tcc tcc tct tct tcc				302
Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser				
58 63 68 73				
agt tct tct agc tcc tct tct tcc tcc tcg tcc tcc tcc tct tcc tcc				/ 350
Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser				
74 79 84 89				

agt gat ggc cgg aag aag cgg ggg aag tac aag gac aag agg agg aag	398
Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg Lys	
90 95 100 105	
aag aag aag aag agg aag aag ctg aag aag aag ggc aag gag aag gcg	446
Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys Ala	
106 111 116 121	
gaa gca cag cag gtg gag gct ctg ccg ggc ccc tcg ctg gac cag tgg	494
Glu Ala Gln Gln Val Glu Ala Leu Pro Gly Pro Ser Leu Asp Gln Trp	
122 127 132 137	
cac cga tca gct ggg gag gaa gag gat ggc cca gtc ctg acg gat gag	542
His Arg Ser Ala Gly Glu Glu Glu Asp Gly Pro Val Leu Thr Asp Glu	
138 143 148 153	
cag aag tcc cga atc cag gcc atg aag ccc atg acc aag gag gag tgg	590
Gln Lys Ser Arg Ile Gln Ala Met Lys Pro Met Thr Lys Glu Glu Trp	
154 159 164 169	
gat gcc cgg cag agc atc atc cgc aag gtg gtg gac cct gag acg ggg	638
Asp Ala Arg Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr Gly	
170 175 180 185	
cgc acc agg ctt att aag gga gat ggc gag gtc cta gag gaa atc gta	686
Arg Thr Arg Leu Ile Lys Gly Asp Gly Glu Val Leu Glu Glu Ile Val	
186 191 196 201	
acc aaa gaa cga cac aga gag atc aac aag gtg ggt gtg gcc cct ctg	734
Thr Lys Glu Arg His Arg Glu Ile Asn Lys Val Gly Val Ala Pro Leu	
202 207 212 217	
cct gcc atc cgc ccc cag ctc tgt ttg tga t gtacccctcc tcctgtgtgc	785
Pro Ala Ile Arg Pro Gln Leu Cys Leu *	
218 223	
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gctctagaca gcgac atg cag acc ctg gtc tat gag aac tac aac aag ttc	291
Met Gln Thr Leu Val Tyr Glu Asn Tyr Asn Lys Phe	
1 5 10	
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Ile Ser Ala Thr Asp Thr Ile Arg Lys Met Lys Asn Asp Phe Arg Lys	
13 18 23 28	
atg gag gat gag atg gac cgg ctg gcc acc aac atg gca gtg atc acc	387
Met Glu Asp Glu Met Asp Arg Leu Ala Thr Asn Met Ala Val Ile Thr	
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gac ttc agc gct cgc atc agc gcc acg ctg cag gac cgc cac gag cgc	435
Asp Phe Ser Ala Arg Ile Ser Ala Thr Leu Gln Asp Arg His Glu Arg	
45 50 55 60	
atc acc aag ctg gca ggg gtc cac gcg ctg ctg cgg aag ctg cag ttc	483
Ile Thr Lys Leu Ala Gly Val His Ala Leu Leu Arg Lys Leu Gln Phe	
61 66 71 76	
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Leu Phe Glu Leu Pro Ser Arg Leu Thr Lys Cys Val Glu Leu Gly Ala	
77 82 87 92	
tat ggg cag gcg gtg cgc tac cag ggc cgc gcg cag gcc gtg ctg cag	579
Tyr Gly Gln Ala Val Arg Tyr Gln Gly Arg Ala Gln Ala Val Leu Gln	
93 98 103 108	
cag tac caa cac ctg ccc tcg ttc cgc gcc atc cag gac gac tgc cag	627
Gln Tyr Gln His Leu Pro Ser Phe Arg Ala Ile Gln Asp Asp Cys Gln	
109 114 119 124	
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Val Ile Thr Ala Arg Leu Ala Gln Gln Leu Arg Gln Arg Phe Arg Glu	
125 130 135 140	
ggc ggc tca ggc gcc ccg gag cag gca gag tgc gtg gag ctg ctg ctg	723
Gly Gly Ser Gly Ala Pro Glu Gln Ala Glu Cys Val Glu Leu Leu Leu	
141 146 151 156	



gcc ctg ggc gag cct gcg gag gag ctg tgc gag gag ttc ctg gcg cac Ala Leu Gly Glu Pro Ala Glu Glu Leu Cys Glu Glu Phe Leu Ala His 157 162 167 172	771
gcc cgc ggc cgg ctg gag aag gag ctg aga aac ctg gag gcc gag ctg Ala Arg Gly Arg Leu Glu Lys Glu Leu Arg Asn Leu Glu Ala Glu Leu 173 178 183 188	819
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gct gcc ggg ctc gca gac gct gcc acg gag atc gtg gaa cga gtg gcc Ala Ala Gly Leu Ala Asp Ala Ala Thr Glu Ile Val Glu Arg Val Ala 285 290 295 300	1155
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Ile Asn Gln Glu Asn Gly Thr Ala Asn Pro Ile Lys Asn Gly Lys Thr				
359	364	369	374	
agt cca gca tct aaa gat cag cgg act gga aag aaa acc tca gta cag				1267
Ser Pro Ala Ser Lys Asp Gln Arg Thr Gly Lys Lys Thr Ser Val Gln				
375	380	385	390	
ggg caa gtg caa aag ggg aat gat gaa tct gaa agt gat ttt gaa tca				1315
Gly Gln Val Gln Lys Gly Asn Asp Glu Ser Glu Ser Asp Phe Glu Ser				
391	396	401	406	

gat ccc cct tct cct aag agc agt gaa gag gaa gag caa gat gat gaa	1363
Asp Pro Pro Ser Pro Lys Ser Ser Glu Glu Glu Glu Gln Asp Asp Glu	
407 412 417 422	
gaa gtt ctt cag ggg gaa caa gga gat ttt aat gat gat gat act gaa	1411
Glu Val Leu Gln Gly Glu Gln Gly Asp Phe Asn Asp Asp Asp Thr Glu	
423 428 433 438	
cca gaa aat ctg ggt cat agg cct ctc ctc atg gat tct gaa gat gag	1459
Pro Glu Asn Leu Gly His Arg Pro Leu Leu Met Asp Ser Glu Asp Glu	
439 444 449 454	
gaa gaa gag gag aaa cat agc tct gat tct gat tat gag cag gct aaa	1507
Glu Glu Glu Glu Lys His Ser Ser Asp Ser Asp Tyr Glu Gln Ala Lys	
455 460 465 470	
gca aag tac agt gac atg agc tct gtc tac aga gac aga tct ggc agt	1555
Ala Lys Tyr Ser Asp Met Ser Ser Val Tyr Arg Asp Arg Ser Gly Ser	
471 476 481 486	
gga cca acc caa gat ctt aat aca ata ctc ctc acc tca gcc caa tta	1603
Gly Pro Thr Gln Asp Leu Asn Thr Ile Leu Leu Thr Ser Ala Gln Leu	
487 492 497 502	
tcc tct gat gtt gca gtg gag act ccc aaa cag gag ttt gat gta ttt	1651
Ser Ser Asp Val Ala Val Glu Thr Pro Lys Gln Glu Phe Asp Val Phe	
503 508 513 518	
ggc gct gtc ccc ttc ttt gca gtg cgt gct caa cag ccc cag caa gaa	1699
Gly Ala Val Pro Phe Phe Ala Val Arg Ala Gln Gln Pro Gln Gln Glu	
519 524 529 534	
aag aat gaa aag aac ctc cct caa cac agg ttt cct gct gca gga ctg	1747
Lys Asn Glu Lys Asn Leu Pro Gln His Arg Phe Pro Ala Ala Gly Leu	
535 540 545 550	
gag cag gag gaa ttt gat gta ttc aca aag gcg cct ttt agc aag aag	1795
Glu Gln Glu Glu Phe Asp Val Phe Thr Lys Ala Pro Phe Ser Lys Lys	
551 556 561 566	
gtg aat gta caa gaa tgc cat gca gtg ggg cct gag gca cat act atc	1843
Val Asn Val Gln Glu Cys His Ala Val Gly Pro Glu Ala His Thr Ile	
567 572 577 582	
cct ggt tat ccc aaa agt gta gat gta ttt ggc tcc act cca ttt cag	1891
Pro Gly Tyr Pro Lys Ser Val Asp Val Phe Gly Ser Thr Pro Phe Gln	
583 588 593 598	
ccc ttc ctc aca tca aca agt aaa agt gaa agc aat gag gac ctt ttt	1939
Pro Phe Leu Thr Ser Thr Ser Lys Ser Glu Ser Asn Glu Asp Leu Phe	
599 604 609 614	
ggg ctt gtg ccc ttt gat gaa ata acg ggg agc cag cag caa aaa gtc	1987
Gly Leu Val Pro Phe Asp Glu Ile Thr Gly Ser Gln Gln Gln Lys Val	
615 620 625 630	

aaa cag cgc agc tta cag aaa ctg tcc tct cgc caa agg cgc aca aag Lys Gln Arg Ser Leu Gln Lys Leu Ser Ser Arg Gln Arg Arg Thr Lys 631 636 641 646	2035
cag gat atg tcc aaa agt aat ggg aag cgg cat cat ggc acg cca act Gln Asp Met Ser Lys Ser Asn Gly Lys Arg His His Gly Thr Pro Thr 647 652 657 662	2083
agc aca aag aag act ttg aag cct acc tat cgc act cca gag agg gct Ser Thr Lys Lys Thr Leu Lys Pro Thr Tyr Arg Thr Pro Glu Arg Ala 663 668 673 678	2131
cgc agg cac aaa aaa gtg ggc cgc cga gac tct caa agt agc aat gaa Arg Arg His Lys Lys Val Gly Arg Arg Asp Ser Gln Ser Ser Asn Glu 679 684 689 694	2179
ttt tta acc atc tca gac tcc aag gag aac att agt gtt gca ctg act Phe Leu Thr Ile Ser Asp Ser Lys Glu Asn Ile Ser Val Ala Leu Thr 695 700 705 710	2227
gat ggg aaa gat agg ggg aat gtc tta caa cct gag gag agc ctg ttg Asp Gly Lys Asp Arg Gly Asn Val Leu Gln Pro Glu Glu Ser Leu Leu 711 716 721 726	2275
gac ccc ttc ggt gcc aag ccc ttc cat tct cca gac ctg tca tgg cac Asp Pro Phe Gly Ala Lys Pro Phe His Ser Pro Asp Leu Ser Trp His 727 732 737 742	2323
cct cca cat cag ggc ctg agc gac atc cgt gct gat cac aat act gtc Pro Pro His Gln Gly Leu Ser Asp Ile Arg Ala Asp His Asn Thr Val 743 748 753 758	2371
ctg cca ggg cgg cca aga caa aat tca cta cat ggg tca ttc cat agt Leu Pro Gly Arg Pro Arg Gln Asn Ser Leu His Gly Ser Phe His Ser 759 764 769 774	2419
gca gat gta ttg aaa atg gat gat ttt ggt gcc gtg ccc ttt aca gaa Ala Asp Val Leu Lys Met Asp Asp Phe Gly Ala Val Pro Phe Thr Glu 775 780 785 790	2467
ctt gtg gtg caa agc atc act cca cat cag tcc caa cag tcc caa cca Leu Val Val Gln Ser Ile Thr Pro His Gln Ser Gln Gln Ser Gln Pro 791 796 801 806	2515
gtc gaa tta gac cca ttt ggt gct gct cca ttt cct tct aaa cag tag Val Glu Leu Asp Pro Phe Gly Ala Ala Pro Phe Pro Ser Lys Gln * 807 812 817 822	2563
atacttctga tggattctcg gcattaactc ctgtttcaaa aaagtgtgaa cagttttatg	2623
aatttgaaag aaaatttggt agctctttat agcattcatt cttaaagatc agtcagaata	2683
ggtgatttct aaataaacca aatagaagaa tgaagtatct ctacagggta gtaacttgat	2743
tcctcttcag gagaaaaggg agctaaattg caagctctaa ctaagggttt ctgctactga	2803
catcacaaca cagaaatgca agtgtggtac ttccagtga agcacatggc acctttctag	2863

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gtgtgtagcc actgagaagg gacagtgaaa ctgttat tttt tgatatcaga atgtcatttt 2923
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tttttaaggt ctctttttaat ttccagacag ttaaaaaacaa tctagttatc ttaaagcatt 3043
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gagccagaag taactgacta ttgtgcctaa aactctgttt cattttttaa aacaagtgcc 3163
attaaaatgg aatatctaata gataagcata tgaaataatg tgtaattagc tcaatttaac 3223
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tcagttaaaa aaaaaaaaaa 3302

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<210> 476
<211> 776
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (405)..(755)

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<220>
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<222> (1)..(776)
<223> n = a,t,c or g

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ttcaagcgat gcaatggatg caagctgcaa tcggaatgca tgggtaagcc tgaagaaatg 120
tttctgttaa tggaagatgg gaaatatgtc gataaatggg caatacgaac gacggcaatg 180
attgccagag aacttggttaa acagaacaac aaagctgcct gatagtggcc tttatttttg 240
gcataaataa cagaataaac actgcactgt gtattcattc caacgagtga atacacggag 300
caatgtcgct cgtaactaaa caggagccga cttgttctga ttattggaaa tcttctttgc 360
cctccagtgt gagggcgatt ttttatctgt gaggatatga acag atg tca aac atc 416
Met Ser Asn Ile
1

```

```

aaa aaa tac atc att gat tac gac tgg aaa gca tca ata gaa att gaa 464
Lys Lys Tyr Ile Ile Asp Tyr Asp Trp Lys Ala Ser Ile Glu Ile Glu
5 10 / 15 20

```

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atc gac cat gac gta atg aca gag gaa aaa ctt cac cag att aat aat 512
Ile Asp His Asp Val Met Thr Glu Glu Lys Leu His Gln Ile Asn Asn

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21	26	31	36	
ttc tgg tca gac tct gaa tac cga ctc aat aaa cac ggc tct gta tta				560
Phe Trp Ser Asp Ser Glu Tyr Arg Leu Asn Lys His Gly Ser Val Leu				
37	42	47	52	
aat gct gta tta atc atg ctg gcg caa cat gct ctg ctt ata gca att				608
Asn Ala Val Leu Ile Met Leu Ala Gln His Ala Leu Leu Ile Ala Ile				
53	58	63	68	
tca agc gac tta aat gca tat ggt gtt gtg tgt gag ttc gac tgg aat				656
Ser Ser Asp Leu Asn Ala Tyr Gly Val Val Cys Glu Phe Asp Trp Asn				
69	74	79	84	
gat gga aat ggt cag gaa gga tgg cct cca atg gat ggt agc gaa gga				704
Asp Gly Asn Gly Gln Glu Gly Trp Pro Pro Met Asp Gly Ser Glu Gly				
85	90	95	100	
ata aga att acc gat atc gat aca tca gga ata ttt att cag atg ata				752
Ile Arg Ile Thr Asp Ile Asp Thr Ser Gly Ile Phe Ile Gln Met Ile				
101	106	111	116	
tga ctatcaagcc tgcagcgtgg t				776
*				
117				

<210> 477  
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 <212> DNA  
 <213> Homo sapiens

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 <222> (138)..(629)

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cctcccaaaa tgctggg atg aca ggc gtg agg cac cac acc cag cta caa	170
Met Thr Gly Val Arg His His Thr Gln Leu Gln	
1 5	
ctg cag act cag tgg gat cct cct act tgg gaa agc cca gga gat gat	218
Leu Gln Thr Gln Trp Asp Pro Pro Thr Trp Glu Ser Pro Gly Asp Asp	
12 17 22 27	
gcc agc ctt gag cat gaa gct gag atg gac ctg gga act cca aca tat	266
Ala Ser Leu Glu His Glu Ala Glu Met Asp Leu Gly Thr Pro Thr Tyr	
28 33 38 43	
gat gaa aac ccc atg aag gcc tcg aaa aag ccc aag aca gca gaa gca	314

Asp	Glu	Asn	Pro	Met	Lys	Ala	Ser	Lys	Lys	Pro	Lys	Thr	Ala	Glu	Ala	
44					49					54					59	
gac acc tcc agt gaa cta gca aag aaa agc aaa gaa gta ttc aga aaa																362
Asp	Thr	Ser	Ser	Glu	Leu	Ala	Lys	Lys	Ser	Lys	Glu	Val	Phe	Arg	Lys	
60					65					70					75	
gag atg tcc cag ttc atc gtc cag tgc ctg aac cct tac cgg aaa cct																410
Glu	Met	Ser	Gln	Phe	Ile	Val	Gln	Cys	Leu	Asn	Pro	Tyr	Arg	Lys	Pro	
76					81					86					91	
gac tgc aaa gtg gga aga att acc aca act gaa gac ttt aaa cat ctg																458
Asp	Cys	Lys	Val	Gly	Arg	Ile	Thr	Thr	Thr	Glu	Asp	Phe	Lys	His	Leu	
92					97					102					107	
gct cgc aag ctg act cac ggt gtt atg aat aag gag ctg aag tac tgt																506
Ala	Arg	Lys	Leu	Thr	His	Gly	Val	Met	Asn	Lys	Glu	Leu	Lys	Tyr	Cys	
108					113					118					123	
aag aat cct gag gac ctg gag tgc aat gag aat gtg aaa cac aaa acc																554
Lys	Asn	Pro	Glu	Asp	Leu	Glu	Cys	Asn	Glu	Asn	Val	Lys	His	Lys	Thr	
124					129					134					139	
aag gag tac att aag aag tac atg cag aag ttt ggg gct gtt tac aaa																602
Lys	Glu	Tyr	Ile	Lys	Lys	Tyr	Met	Gln	Lys	Phe	Gly	Ala	Val	Tyr	Lys	
140					145					150					155	
ccc aaa gag gac act gaa tta gag tga ctgtt gggccagggt gggaggatgg																654
Pro	Lys	Glu	Asp	Thr	Glu	Leu	Glu	*								
156					161											
gtgggtcagggt aagacagact ctagggagag gaaatcctgt gggcctttct gtcccacccc																714
tgtcagcact gtgctactga tgatacatca ccctggggaa ttcaaccctg cagatgtcaa																774
ctgaaggcca caaaattgaa ctcatctaca agtgattacc tagttgtgag ctgttggcat																834
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actcttaaac ctgggtcttc tccttggegg tgctgtcagc gcacagacc atgcgcatcc																954
ccaccacaa cactttaccc tgatgatctg tattatattt taatgtatat gtgaatatat																1014
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tgttatcatg taaatattcc aaagcaggct gccttggtgtt tttggccagc cttgtgctat																1194
gttgataaga ttgatttact gcttaaaatc actttacttt atccaatttt tactgaactt																1254
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<220>  
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 <222> (403)..(723)

<400> 478

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cccttaagga ttccatgcc atgtaacagc acaggcatgg gtgtgatctc acgtgttcac      180
agcttccggg ggctaggatg agacatgctt gggggcgggg gccacttaaa aatgtgcctg      240
cactgtgggc gtgatgctct gcaactgtgga aggaaaagga gttaaagag aaatgatggc      300
gggcgctgag cctgagcagc gccgctttgt gccgcagcat caacctgtgg gaaatggcgg      360
agttcctgct gaaacaggac gtggtcaacg ccatcaacct gg  atg ggg gtg gct      414
                                     Met Gly Val Ala
                                     1

ctg cca cct ttg tgc tca acg gga cct tgg cca gtt acc cgt cag atc      462
Leu Pro Pro Leu Cys Ser Thr Gly Pro Trp Pro Val Thr Arg Gln Ile
   5              10              15              20

act gcc agg aca aca tgt ggc gct gtc ccc gcc aag tgt cca ccg tgg      510
Thr Ala Arg Thr Thr Cys Gly Ala Val Pro Ala Lys Cys Pro Pro Trp
  21              26              31              36

tgt gtg tgc acg aac ccc gct gcc agc cgc ctg act gcc acg gcc acg      558
Cys Val Cys Thr Asn Pro Ala Ala Ser Arg Leu Thr Ala Thr Ala Thr
  37              42              47              52

gga cct gcg tgg acg ggc act gcc aat gca ccg ggc act tct ggc ggg      606
Gly Pro Ala Trp Thr Gly Thr Ala Asn Ala Pro Gly Thr Ser Gly Gly
  53              58              63              68

gtc ccg gct gtg atg agc tgg act gtg gcc cct cta act gca gcc agc      654
Val Pro Ala Val Met Ser Trp Thr Val Ala Pro Leu Thr Ala Ala Ser
  69              74              79              84

acg gac tgt gca ccg aga ccg gct gcc gct gtg atg ccg gat gga ccg      702
Thr Asp Cys Ala Arg Arg Pro Ala Ala Ala Val Met Pro Asp Gly Pro
  85              90              95              100

ggc cca act gca gtg aag taa ag cagtgtctcc agccacctgg aagccacct      755
Gly Pro Thr Ala Val Lys *
101              106

gagggcgagg gaactctcct ttttcaccag gaccgctgg ctagccctca ccctggcgct      815

ggccttctct ctgctgatca gcattgcagc aaacctgtcc ttgctcctgt ccagagcaga      875

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gaggaaccgg cgctgcatg gggactatgc ataccacccg ctgcaggaga tgaacgggga	935
gcctctggcc gcagagaagg agcagccagg gggcgccac aacccttca aggactgaag	995
cctcaagctg cccggggtg cagctcgca aagcttggtt cccacggtc tggcttctgc	1055
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gccaaagtcc tgatagcact tgtgcctcag cccctcacct ggccacctgc cagggcacct	1175
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tgtgacacgg gacccctttt ctacagacct catcactgga ttgccaact agaattcgat	1475
ttcctgtcat aggaagctcc ttggaagaag ggatgggggg atgaaatcat gtttacagac	1535
ctgttttgtc atcctgctgc caagaagttt tttaatcact tgaataaatt gatataataa	1595
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 <222> (590) .. (3412)

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tggacttcac ttacaggtct taagcacaag aaatgaaaat aagctgcttc ctaaacaacc	180
tcatttagtg cggcaaaagc gcgcctggat caccgcccc gtggctcttc tggagggaga	240
ggatctgtcc aagaagaatc caattgccaa gatacattct gatcttgacg aagaagagg	300
actcaaaatt acttacaaat aactggaaa agggattaca gagccacctt ttggtatatt	360
tgtctttaac aaagatactg gagaactgaa tgttaccagc attcttgatc gagaagaaac	420
accatctttt ctgctaacag gttacgcttt ggatgcaaga ggaaacaatg tagagaaacc	480
cttagagcta cgcattaagg ttcttgatat caatgacaac gaaccagtgt tcacacagga	540



tgtctttgtt	gggtctgttg	aagagttgag	tcgagcacat	actcttgtg	atg aaa	595
					Met Lys	
					1	
atc aat gca aca gat gca gat gag ccc aat acc ctg aat tcg aaa att	643					
Ile Asn Ala Thr Asp Ala Asp Glu Pro Asn Thr Leu Asn Ser Lys Ile						
3 8 13 18						
tcc tat aga atc gta tct ctg gag cct gct tat cct cca gtg ttc tac	691					
Ser Tyr Arg Ile Val Ser Leu Glu Pro Ala Tyr Pro Pro Val Phe Tyr						
19 24 29 34						
cta aat aaa gat aca gga gag att tat aca acc agt gtt acc ttg gac	739					
Leu Asn Lys Asp Thr Gly Glu Ile Tyr Thr Ser Val Thr Leu Asp						
35 40 45 50						
aga gag gaa cac agc agc tac act ttg aca gta gaa gca aga gat ggc	787					
Arg Glu Glu His Ser Ser Tyr Thr Leu Thr Val Glu Ala Arg Asp Gly						
51 56 61 66						
aat gga gaa gtt aca gac aaa cct gta aaa caa gct caa gtt cag att	835					
Asn Gly Glu Val Thr Asp Lys Pro Val Lys Gln Ala Gln Val Gln Ile						
67 72 77 82						
cgt att ttg gat gtc aat gac aat ata cct gta gta gaa aat aaa gtg	883					
Arg Ile Leu Asp Val Asn Asp Asn Ile Pro Val Val Glu Asn Lys Val						
83 88 93 98						
ctt gaa ggg atg gtt gaa gaa aat caa gtc aac gta gaa gtt acg cgc	931					
Leu Glu Gly Met Val Glu Glu Asn Gln Val Asn Val Glu Val Thr Arg						
99 104 109 114						
gta aaa gtg ttc gat gca gat gaa ata ggt tct gat aat tgg ctg gca	979					
Val Lys Val Phe Asp Ala Asp Glu Ile Gly Ser Asp Asn Trp Leu Ala						
115 120 125 130						
aat ttt aca ttt gca tca gga aat gaa gga ggt tat ttc cac ata gaa	1027					
Asn Phe Thr Phe Ala Ser Gly Asn Glu Gly Gly Tyr Phe His Ile Glu						
131 136 141 146						
aca gat gct caa act aac gaa gga att gtg acc ctt att aag gaa gta	1075					
Thr Asp Ala Gln Thr Asn Glu Gly Ile Val Thr Leu Ile Lys Glu Val						
147 152 157 162						
gat tat gaa gaa atg aag aat ctt gac ttc agt gtt att gtc gct aat	1123					
Asp Tyr Glu Glu Met Lys Asn Leu Asp Phe Ser Val Ile Val Ala Asn						
163 168 173 178						
aaa gca gct ttt cac aag tcg att agg agt aaa tac aag cct aca ccc	1171					
Lys Ala Ala Phe His Lys Ser Ile Arg Ser Lys Tyr Lys Pro Thr Pro						
179 184 189 194						
att ccc atc aag gtc aaa gtg aaa aat gtg aaa gaa ggc att cat ttt	1219					
Ile Pro Ile Lys Val Lys Val Lys Asn Val Lys Glu Gly Ile His Phe						
195 200 205 210						
aaa agc agc gtc atc tca att tat gtt agc gag agc atg gat aga tca	1267					

Lys	Ser	Ser	Val	Ile	Ser	Ile	Tyr	Val	Ser	Glu	Ser	Met	Asp	Arg	Ser		
211					216					221					226		
agc	aaa	ggc	caa	ata	att	gga	aat	ttt	caa	gct	ttt	gat	gag	gac	act	1315	
Ser	Lys	Gly	Gln	Ile	Ile	Gly	Asn	Phe	Gln	Ala	Phe	Asp	Glu	Asp	Thr		
227					232					237					242		
gga	cta	cca	gcc	cat	gca	aga	tat	gta	aaa	tta	gaa	gat	aga	gat	aat	1363	
Gly	Leu	Pro	Ala	His	Ala	Arg	Tyr	Val	Lys	Leu	Glu	Asp	Arg	Asp	Asn		
243					248					253					258		
tgg	atc	tct	gtg	gat	tct	gtc	aca	tct	gaa	att	aaa	ctt	gca	aaa	ctt	1411	
Trp	Ile	Ser	Val	Asp	Ser	Val	Thr	Ser	Glu	Ile	Lys	Leu	Ala	Lys	Leu		
259					264					269					274		
cct	gat	ttt	gaa	tct	aga	tat	gtt	caa	aat	ggc	aca	tac	act	gta	aag	1459	
Pro	Asp	Phe	Glu	Ser	Arg	Tyr	Val	Gln	Asn	Gly	Thr	Tyr	Thr	Val	Lys		
275					280					285					290		
att	gtg	gcc	ata	tca	gaa	gat	tat	cct	aga	aaa	acc	atc	act	ggc	aca	1507	
Ile	Val	Ala	Ile	Ser	Glu	Asp	Tyr	Pro	Arg	Lys	Thr	Ile	Thr	Gly	Thr		
291					296					301					306		
gtc	ctt	atc	aat	gtt	gaa	gac	atc	aac	gac	aac	tgt	ccc	aca	ctg	ata	1555	
Val	Leu	Ile	Asn	Val	Glu	Asp	Ile	Asn	Asp	Asn	Cys	Pro	Thr	Leu	Ile		
307					312					317					322		
gag	cct	gtg	cag	aca	atc	tgt	cac	gat	gca	gag	tat	gtg	aat	gtt	act	1603	
Glu	Pro	Val	Gln	Thr	Ile	Cys	His	Asp	Ala	Glu	Tyr	Val	Asn	Val	Thr		
323					328					333					338		
gca	gag	gac	ctg	gat	gga	cac	cca	aac	agt	ggc	cct	ttc	agt	ttc	tcc	1651	
Ala	Glu	Asp	Leu	Asp	Gly	His	Pro	Asn	Ser	Gly	Pro	Phe	Ser	Phe	Ser		
339					344					349					354		
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Ser	Gly	Cys	Arg	Glu	Ala	Gln	His	Asp	Ser	Tyr	Val	Gly	Leu	Gly	Pro		
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Thr Pro Ile Pro Gly Thr Ile Glu Met Leu His Pro Trp Asn Asn Glu				
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Gln Gly Gly Ser Leu Val Gly Arg Asn Gly Val Gly Gly Met Ala Lys				
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Glu Ala Thr Met Lys Gly Ser Ser Ser Ala Ser Ile Val Lys Gly Gln				
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Thr Thr Glu Thr Thr Lys Thr Ala Arg Ala Thr Gly Ala Ser Arg Asp				
563	568	573	578	
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Met Ala Gly Ala Gln Ala Ala Ala Val Ala Leu Asn Glu Glu Phe Leu				
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Leu Asp Asp Arg Phe Leu Asp Asp Leu Gly Leu Lys Phe Lys Thr Leu				
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Ala Glu Val Cys Leu Gly Gln Lys Ile Asp Ile Asn Lys Glu Ile Glu				
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Thr	Val	Thr	Glu	Arg	Val	Leu	Ala	Pro	Ala	Ser	Thr	Leu	Gln	Ser	Ser	
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Tyr	Gln	Ile	Pro	Thr	Glu	Asn	Ser	Met	Thr	Ala	Arg	Asn	Thr	Thr	Val	
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Ser Gly Ala Gly Val Pro Gly Pro Leu Pro Asp Phe Gly Leu Glu Glu	
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Ser Gly His Ser Asn Ser Thr Ile Thr Thr Ser Ser Thr Arg Val Thr	
915 920 925 930	

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Lys His Ser Thr Val Gln His Ser Tyr Ser *	
931 936 941	

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Arg Asn Leu Asn Leu Phe Lys Leu Phe Arg Leu Val His Lys Leu Gly	
17 22 27 32	

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Gly Phe Asp Asn Ile Glu Ser Gly Ala Val Trp Lys Gln Val Tyr Gln	
33 38 43 48	

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Asp Leu Gly Ile Pro Val Leu Asn Ser Ala Ala Gly Tyr Asn Val Lys	
49 54 59 64	

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Cys Ala Tyr Lys Lys Tyr Leu Tyr Gly Phe Glu Glu Tyr Cys Arg Ser	
65 70 75 80	

ccc aac att gaa ttt cag atg gca ttg cca gag aaa gtt gtt aac aag /	288
Pro Asn Ile Glu Phe Gln Met Ala Leu Pro Glu Lys Val Val Asn Lys	
81 86 91 96	

caa tgt aag gag tgt gaa aat gta aaa gaa ata aaa gtt aag gag gaa	336
Gln Cys Lys Glu Cys Glu Asn Val Lys Glu Ile Lys Val Lys Glu Glu	
97 102 107 112	
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Asn Glu Thr Glu Ile Gln Glu Ile Lys Met Glu Glu Glu Arg Asn Ile	
113 118 123 128	
ata cca aga gaa gaa aag cct att gag gat gaa att gaa aga aaa gaa	432
Ile Pro Arg Glu Glu Lys Pro Ile Glu Asp Glu Ile Glu Arg Lys Glu	
129 134 139 144	
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Asn Ile Lys Pro Ser Leu Gly Ser Lys Lys Asn Leu Leu Glu Ser Ile	
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Pro Thr His Ser Asp Gln Glu Lys Glu Val Asn Ile Lys Lys Pro Glu	
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Asp Asn Glu Asn Leu Asp Asp Lys Asp Asp Asp Thr Thr Arg Val Asp	
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Glu Ser Leu Asn Ile Lys Val Glu Ala Glu Glu Glu Lys Ala Lys Ser	
193 198 203 208	
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209 214 219 224	
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Gln Val Arg Tyr Gly Arg Gly Lys Asn Gln Lys Met Tyr Glu Ala Ser	
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Ile Lys Asp Ser Asp Val Glu Gly Gly Glu Val Leu Tyr Leu Val His	
273 278 283 288	
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Tyr Cys Gly Trp Asn Val Arg Tyr Asp Glu Trp Ile Lys Ala Asp Lys	
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Ile Val Arg Pro Ala Asp Lys Asn Val Pro Lys Ile Lys His Arg Lys	
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Leu	Asn	Gly	Leu	Gln	Ala	Ser	Glu	Ser	Ser	Ala	Glu	Asp	Ser	Glu	Gln	
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Ser	Lys	Ile	Asp	His	Leu	Thr	Asn	Asn	Arg	Asn	Asp	Leu	Ile	Ser	Lys	
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Arg *	
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389 394 399 404	
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Ile Asn Ser Val Ala Gln Gln Ala Glu Gly Arg Phe Glu Lys Ala Ser	
405 / 410 415 420	
gtg gag tac cag gaa cac ctg tgt gcc atg aca ggt gtt gat tgc tgc	1351
Val Glu Tyr Gln Glu His Leu Cys Ala Met Thr Gly Val Asp Cys Cys	

421	426	431	436	
atc tcc agc ttt gac	aaa tcg gtg ctc acc	tta gcc agt gct ggg tgt		1399
Ile Ser Ser Phe Asp	Lys Ser Val Leu Thr	Leu Ala Ser Ala Gly Cys		
437	442	447	452	
aag agt gcc agc ctg	aaa cat tgt ctg aat	ggt gaa tcc aga aaa agt		1447
Lys Ser Ala Ser Leu	Lys His Cys Leu Asn	Gly Glu Ser Arg Lys Ser		
453	458	463	468	
gtg ctg tcc aaa ccg	act gac tct tcc cct	gag gtt ata aat tat tta		1495
Val Leu Ser Lys Pro	Thr Asp Ser Ser Pro	Glu Val Ile Asn Tyr Leu		
469	474	479	484	
gga aac aaa gca tgt	gag tgc tac atc tca	act gcc gat tgg gct gct		1543
Gly Asn Lys Ala Cys	Glu Cys Tyr Ile Ser	Thr Ala Asp Trp Ala Ala		
485	490	495	500	
gtg cag gaa tgg cag	aac gct atc cat gac	ttg aaa aag agt acc agt		1591
Val Gln Glu Trp Gln	Asn Ala Ile His Asp	Leu Lys Lys Ser Thr Ser		
501	506	511	516	
agc act tcc ctc aac	ctg aaa gct gac ttc	aac tat ata aaa tca tta		1639
Ser Thr Ser Leu Asn	Leu Lys Ala Asp Phe	Asn Tyr Ile Lys Ser Leu		
517	522	527	532	
agc agc ttt gag tct	gga aaa ttt gtc gaa	tgt acc gag caa tta gaa		1687
Ser Ser Phe Glu Ser	Gly Lys Phe Val Glu	Cys Thr Glu Gln Leu Glu		
533	538	543	548	
ttg tta cca gga gaa	aat atc aat cta ctt	gct gga gga tca aaa gaa		1735
Leu Leu Pro Gly Glu	Asn Ile Asn Leu Leu	Ala Gly Gly Ser Lys Glu		
549	554	559	564	
aaa ata gac atg aaa	aaa ctg ctt cgt aac	atg tga agtc cagatccaag		1785
Lys Ile Asp Met Lys	Lys Leu Leu Arg Asn	Met *		
565	570	575		
ggaacctcag aaatccattg	aagttccatt gttaagaagt	tctgttttgtt tggcaactgc		1845
tttaaaccgc atagaacaag	atcagaagtg gcagtctata	actgaaaatg tggtaaagta		1905
cttgaagcaa acatcccgca	tcgctattgg acctctgaga	ctttctactt taacagtttc		1965
acagtctttg ccagttctaa	gtaccttgca gctgtattgc	tcgtctgctt tggagaccac		2025
agtttctaac agactttcaa	cagaggactg tcttattcca	ctcttcggcg aagctttacg		2085
ttcatgtaaa cagcatgacg	tgaggccgtg gatgcaggca	ttaaggtata ctgtgtacca		2145
gaatcagttg ttggagaaaa	ttaaagttaa gtgggtttcc	tttttttttt ttgtaagaga		2205
aaattaaagg tggttttttt	tttttaattt tgctttattg	aggtttatat tacacattct		2265
aagtgtatgg tttgatgagt	tctaacatgt cttcacttgt	gtgaccacca atacgatcga		2325
gatacagaac agcgtcttac	cccagaaggt tcccttgaga	tcctctcttc atttgccctt		2385

gtcagcagtt actgatttgc tttctgtcac tatggattag acttgtcttt actaaagttt 2445  
catgtacgtg aaatcattac caccaaa 2472

<210> 484  
<211> 1276  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (331)..(930)

<400> 484  
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gggatatgga gggggattcc agccccctg gaccggccgg aggtttatcc tagagttact 120  
ggcgggtagc tgtgcttttc tttcccgttt gtaggtgaaa cccattggc ttcattggct 180  
ccttgattta aaccacgccc ggctttctgc cctctttgct gctgctgggc caggttgccc 240  
agccatatcc cagccccgtc tgcagggagc cggaggctgc tgctgctgct attgtgtgga 300  
tgccgcgcgt gtcttctctt ctttccagag atg gct aac agg ggc ccg agc 351  
Met Ala Asn Arg Gly Pro Ser  
1 5  
tat ggc tta agc cga gag gtg cag gag aag atc gag cag aag tat gat 399  
Tyr Gly Leu Ser Arg Glu Val Gln Glu Lys Ile Glu Gln Lys Tyr Asp  
8 13 18 23  
gcg gac ctg gag aac aag ctg gtg gac tgg atc atc ctg cag tgc gcc 447  
Ala Asp Leu Glu Asn Lys Leu Val Asp Trp Ile Ile Leu Gln Cys Ala  
24 29 34 39  
gag gac ata gag cac ccg ccc ccc ggc agg gcc cat ttt cag aaa tgg 495  
Glu Asp Ile Glu His Pro Pro Pro Gly Arg Ala His Phe Gln Lys Trp  
40 45 50 55  
tta atg gac ggg acg gtc ctg tgc aag ctg ata aat agt tta tac cca 543  
Leu Met Asp Gly Thr Val Leu Cys Lys Leu Ile Asn Ser Leu Tyr Pro  
56 61 66 71  
cca gga caa gag ccc ata ccc aag atc tca gag tca aag atg gct ttt 591  
Pro Gly Gln Glu Pro Ile Pro Lys Ile Ser Glu Ser Lys Met Ala Phe  
72 77 82 87  
aag cag atg gag caa atc tcc cag ttc cta aaa gct gcg gag acc tat 639  
Lys Gln Met Glu Gln Ile Ser Gln Phe Leu Lys Ala Ala Glu/Thr Tyr  
88 93 98 103  
ggg gtc aga acc acc gac atc ttt cag acg gtg gat cta tgg gaa ggg 687

Gly Val Arg Thr Thr Asp Ile Phe Gln Thr Val Asp Leu Trp Glu Gly	
104 109 114 119	
aag gac atg gca gct gtg cag agg acc ctg atg gct tta ggc agc gtt	735
Lys Asp Met Ala Ala Val Gln Arg Thr Leu Met Ala Leu Gly Ser Val	
120 125 130 135	
gca gtc acc aag gat gat ggc tgc tat cgg gga gag cca tcc tgg ttt	783
Ala Val Thr Lys Asp Asp Gly Cys Tyr Arg Gly Glu Pro Ser Trp Phe	
136 141 146 151	
cac agg aaa gcc cag cag aat cgg aga ggc ttt tcc gag gag cag ctt	831
His Arg Lys Ala Gln Gln Asn Arg Arg Gly Phe Ser Glu Glu Gln Leu	
152 157 162 167	
cgc cag gga cag aac gta ata ggc ctg cag atg ggc agc aac aag gga	879
Arg Gln Gly Gln Asn Val Ile Gly Leu Gln Met Gly Ser Asn Lys Gly	
168 173 178 183	
gcc tcc cag gcg ggc atg aca ggg tac ggg atg ccc agg cag atc atg	927
Ala Ser Gln Ala Gly Met Thr Gly Tyr Gly Met Pro Arg Gln Ile Met	
184 189 194 199	
tag gacg cggcatcctg cccctggtag agaggacgaa tgttccacac catggtctct	984
* 200	
acgaaaaaga aatagttagt caccttctga ccttctcctc tttctcaaag ccttctgtcc	1044
ctgggtttttg caagtgtctgc atttccgccg agaatccgcg ttgcctactg ctgccacctc	1104
ctgttcattt agaactatgc aaagactccg ctcccggtttt cctgagctcc tcggggcccca	1164
gagtctctgt ttgattattt atttatttat ttatttattt gccaaaaatt ctctcttca	1224
acttatagaa tgcacctaat aaagtaatta gtcttgtgtc aaaaaaaaaa aa	1276

<210> 485  
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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (755)..(1726)

<400> 485	
ccggtcagga attctcgggg cgaccacgc gtccgctgat gcctggtgca ggattgcttc	60
caataccgac cccaaatcct / ttgactactc ttggtgtttc acttagcagt ttgggagcta	120
taccagcagc agcactagac cccaacattg caacacttgg agagatacca cagccaccac	180
ttatgggaaa cgtggatcct tccaaaatag atgaaattag gagaacgggt tatgttgga	240





aag gaa cag gac aaa gaa aag gaa cga gaa aaa gac aga tcc aaa gag	1252
Lys Glu Gln Asp Lys Glu Lys Glu Arg Glu Lys Asp Arg Ser Lys Glu	
151 156 161 166	
ata gat gaa aaa aga aag aag gat aaa aaa tcc aga aca cca ccc agg	1300
Ile Asp Glu Lys Arg Lys Lys Asp Lys Lys Ser Arg Thr Pro Pro Arg	
167 172 177 182	
agt tac aat gca tgc cga aga tct cgt agt tcc agc agg gaa agg cgt	1348
Ser Tyr Asn Ala Ser Arg Arg Ser Arg Ser Ser Ser Arg Glu Arg Arg	
183 188 193 198	
agg agg agg agc agg agt tct tcc aga tgc cca aga aca tca aaa acc	1396
Arg Arg Arg Ser Arg Ser Ser Ser Arg Ser Pro Arg Thr Ser Lys Thr	
199 204 209 214	
ata aaa agg aaa tct tct aga tct ccg tcc ccc agg aga aat aag aag	1444
Ile Lys Arg Lys Ser Ser Arg Ser Pro Ser Pro Arg Arg Asn Lys Lys	
215 220 225 230	
gat aaa aag aga gaa aaa gaa agg gac cac atc agt gaa aga aga gag	1492
Asp Lys Lys Arg Glu Lys Glu Arg Asp His Ile Ser Glu Arg Arg Glu	
231 236 241 246	
aga gaa cgt tca acg tct atg aga aag agt tct aat gat aga gat ggg	1540
Arg Glu Arg Ser Thr Ser Met Arg Lys Ser Ser Asn Asp Arg Asp Gly	
247 252 257 262	
aag gag aag ttg gag aag aac agt act tca ctt aaa gag aaa gag cac	1588
Lys Glu Lys Leu Glu Lys Asn Ser Thr Ser Leu Lys Glu Lys Glu His	
263 268 273 278	
aat aaa gaa cca gat tca agt gtg agc aaa gaa gta gat gac aag gat	1636
Asn Lys Glu Pro Asp Ser Ser Val Ser Lys Glu Val Asp Asp Lys Asp	
279 284 289 294	
gca cca agg act gag gaa aac aaa ata cag cac aat ggg aat tgt cag	1684
Ala Pro Arg Thr Glu Glu Asn Lys Ile Gln His Asn Gly Asn Cys Gln	
295 300 305 310	
ctg aat gaa gaa aac ctc tct acc aaa aca gaa gca gta tag gaccgac	1733
Leu Asn Glu Glu Asn Leu Ser Thr Lys Thr Glu Ala Val *	
311 316 321	
aagtgtacct ctgcactcaa tgctggaatc aaatccaaag cttttaattc tctcaacaag	1793
atgtaaacag gaaagaaatc tagttgagca tga	1826

<210> 486  
 <211> 632  
 <212> DNA  
 <213> Homo sapiens  
 <220>

<221> CDS

<222> (67)..(486)

<400> 486

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agaaca atg tca tca cta ccc gta cca tac aca ctg cct gtt tcc ttg 108  
Met Ser Ser Leu Pro Val Pro Tyr Thr Leu Pro Val Ser Leu  
1 5 10  
cct gtt ggt tgc tgc gtg ata atc aca ggg aca ccg atc ctc act ttt 156  
Pro Val Gly Ser Cys Val Ile Ile Thr Gly Thr Pro Ile Leu Thr Phe  
15 20 25 30  
gtc aag gac cca cag ctg gag gtg aat ttc tac act ggg atg gat gag 204  
Val Lys Asp Pro Gln Leu Glu Val Asn Phe Tyr Thr Gly Met Asp Glu  
31 36 41 46  
gac tca gat att gct ttc caa ttc cga ctg cac ttt ggt cat cct gca 252  
Asp Ser Asp Ile Ala Phe Gln Phe Arg Leu His Phe Gly His Pro Ala  
47 52 57 62  
atc atg aac agt tgt gtg ttt ggc ata tgg aga tat gag gag aaa tgc 300  
Ile Met Asn Ser Cys Val Phe Gly Ile Trp Arg Tyr Glu Glu Lys Cys  
63 68 73 78  
tac tat tta ccc ttt gaa gat ggc aaa cca ttt gag ctg tgc atc tat 348  
Tyr Tyr Leu Pro Phe Glu Asp Gly Lys Pro Phe Glu Leu Cys Ile Tyr  
79 84 89 94  
gtg cgt cac aag gaa tac aag gta atg gta aat ggc caa cgc att tac 396  
Val Arg His Lys Glu Tyr Lys Val Met Val Asn Gly Gln Arg Ile Tyr  
95 100 105 110  
aac ttt gcc cat cga ttc ccg cca gca tct gtg aag atg ctg caa gtc 444  
Asn Phe Ala His Arg Phe Pro Pro Ala Ser Val Lys Met Leu Gln Val  
111 116 121 126  
ttg aga gat atc tcc ctg acc aga gtg ctt atc agc gat tga gggagat 493  
Leu Arg Asp Ile Ser Leu Thr Arg Val Leu Ile Ser Asp \*  
127 132 137  
gatcagactc ctcattgttg aggaatccct ctttctacct gaccatggga ttcccagagc 553  
ctactaacag aataatccct cctcaccct tcccctacac ttgatcatta aaacagcacc 613  
aaacctcaaa aaaaaaaaaa 632

<210> 487

<211> 2102

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (309) .. (1283)

<400> 487

attgaacgcc tgatgtaccg gtccggaatt cccgggtcga cccacgcgtc cggggggagg	60
cgcgtcgcga ggcgagcgtc ctccttttgt gcgagcgccg gcggctcggc ttctcgaagg	120
agaagaaact gaggcctgga atttgattaa ctcattcaag gttacccagt tggttaattca	180
tttgacacacc tgtttagcaag aaacagaagt tgaaggactg gaacaagtga actaggaaag	240
aggggaacgcc aatccaagga tagaaggaca aggacagaat caccagcact ggctgaagggt	300
accttaac atg ggg aat ctt ctt aaa gtt ttg aca tgc aca gac ctt gag	350
Met Gly Asn Leu Leu Lys Val Leu Thr Cys Thr Asp Leu Glu	
1 5 10	
cag ggg cca aat ttt ttc ctt gat ttt gaa aat gcc cag cct aca gag	398
Gln Gly Pro Asn Phe Phe Leu Asp Phe Glu Asn Ala Gln Pro Thr Glu	
15 20 25 30	
tct gag aag gaa att tat aat cag gtg aat gta gta tta aaa gat gca	446
Ser Glu Lys Glu Ile Tyr Asn Gln Val Asn Val Val Leu Lys Asp Ala	
31 36 41 46	
gaa ggc atc ttg gag gac ttg cag tca tac aga gga gct ggc cac gaa	494
Glu Gly Ile Leu Glu Asp Leu Gln Ser Tyr Arg Gly Ala Gly His Glu	
47 52 57 62	
ata cga gag gca atc cag cat cca gca gat gag aag ttg caa gag aag	542
Ile Arg Glu Ala Ile Gln His Pro Ala Asp Glu Lys Leu Gln Glu Lys	
63 68 73 78	
gca tgg ggt gca gtt gtt cca cta gta ggc aaa tta aag aaa ttt tac	590
Ala Trp Gly Ala Val Val Pro Leu Val Gly Lys Leu Lys Lys Phe Tyr	
79 84 89 94	
gaa ttt tct cag agg tta gaa gca gca tta aga ggt ctt ctg gga gcc	638
Glu Phe Ser Gln Arg Leu Glu Ala Ala Leu Arg Gly Leu Leu Gly Ala	
95 100 105 110	
tta aca agt acc cca tat tct ccc acc cag cat cta gag cga gag cag	686
Leu Thr Ser Thr Pro Tyr Ser Pro Thr Gln His Leu Glu Arg Glu Gln	
111 116 121 126	
gct ctt gct aaa cag ttt gca gaa att ctt cat ttc aca ctc cgg ttt	734
Ala Leu Ala Lys Gln Phe Ala Glu Ile Leu His Phe Thr Leu Arg Phe	
127 132 137 142	
gat gaa ctc aag atg aca aat cct gcc ata cag aat gat ttc agc tat	782
Asp Glu Leu Lys Met Thr Asn Pro Ala Ile Gln Asn Asp Phe Ser Tyr	
143 148 153 158	
tat aga aga aca ttg agt cgt atg agg att aac aat gta ccg gca gaa	830
Tyr Arg Arg Thr Leu Ser Arg Met Arg Ile Asn Asn Val Pro Ala Glu	
159 164 169 174	





tgg att gct gct ttc aat tac tgg cat cca gaa att gtg tat tca ggg	868
Trp Ile Ala Ala Phe Asn Tyr Trp His Pro Glu Ile Val Tyr Ser Gly	
23 28 33 38	
ggc gac gat ggc ctt ctg agg ggc tgg gac acc agg gta ccc ggc aaa	916
Gly Asp Asp Gly Leu Leu Arg Gly Trp Asp Thr Arg Val Pro Gly Lys	
39 44 49 54	
ttt ctc ttc acc agc aaa aga cac acc atg ggt gtg tgc agc atc cag	964
Phe Leu Phe Thr Ser Lys Arg His Thr Met Gly Val Cys Ser Ile Gln	
55 60 65 70	
agc agc cct cat cgg gag cac atc ctg gcc acg gga agc tat gat gaa	1012
Ser Ser Pro His Arg Glu His Ile Leu Ala Thr Gly Ser Tyr Asp Glu	
71 76 81 86	
cac atc cta ctg tgg gac aca cga aac atg aag cag ccg ttg gca gat	1060
His Ile Leu Leu Trp Asp Thr Arg Asn Met Lys Gln Pro Leu Ala Asp	
87 92 97 102	
acg cct gtg cag ggt ggg gta tgg aga atc aag tgg cac cct ttc cac	1108
Thr Pro Val Gln Gly Gly Val Trp Arg Ile Lys Trp His Pro Phe His	
103 108 113 118	
cac cac ctg ctc ctg gcc gcc tgc atg cac agt ggc ttt aag atc ctc	1156
His His Leu Leu Leu Ala Ala Cys Met His Ser Gly Phe Lys Ile Leu	
119 124 129 134	
aac tgc caa aag gca atg gag gag agg cag gag gcg acg gtc ctg aca	1204
Asn Cys Gln Lys Ala Met Glu Glu Arg Gln Glu Ala Thr Val Leu Thr	
135 140 145 150	
tct cac aca ttg ccc gac tcg ctg gtg tat gga gcc gac tgg tcc tgg	1252
Ser His Thr Leu Pro Asp Ser Leu Val Tyr Gly Ala Asp Trp Ser Trp	
151 156 161 166	
ctg ctc ttc cgt tct ctg cag cgg gcc ccc tcg tgg tcc ttt cct agc	1300
Leu Leu Phe Arg Ser Leu Gln Arg Ala Pro Ser Trp Ser Phe Pro Ser	
167 172 177 182	
aac cta gga acc aag acg gca gac ctg aag ggt gca agc gag ttg cca	1348
Asn Leu Gly Thr Lys Thr Ala Asp Leu Lys Gly Ala Ser Glu Leu Pro	
183 188 193 198	
aca ccc tgt cat gaa tgc aga gag gat aac gat ggg gag ggc cat gcc	1396
Thr Pro Cys His Glu Cys Arg Glu Asp Asn Asp Gly Glu Gly His Ala	
199 204 209 214	
aga ccc cag agt gga atg aag cca ctc aca gag ggc atg agg aag aat	1444
Arg Pro Gln Ser Gly Met Lys Pro Leu Thr Glu Gly Met Arg Lys Asn	
215 220 225 230	
ggc acc tgg ctg cag gct aca gca gcc acc aca cgt gac tgt ggc gtg	1492
Gly Thr Trp Leu Gln Ala Thr Ala Ala Thr Thr Arg Asp Cys Gly Val	
231 236 241 246	
aac cca gaa gaa gca gac tca gcc ttc agc ctc ctg gcc acc tgc tcc	1540

Asn Pro Glu Glu Ala Asp Ser Ala Phe Ser Leu Leu Ala Thr Cys Ser  
 247 252 257 262

ttc tat gac cat gcg ctc cac ctc tgg gag tgg gag ggg aac tga gct 1588  
 Phe Tyr Asp His Ala Leu His Leu Trp Glu Trp Glu Gly Asn \*  
 263 268 273

tgaaatcatg aagccccttc ccacaaggaa accaggaggg agactgcgag tgagtgcccg 1648

ggaccacctc atcagagatg cttactgcag ccctgcaggt gcctgtgcac tgatggaatc 1708

cacagtgtag tcagaaaagc tgttgacttc tcttaaatca gcttccctgc tggggccctg 1768

aaagtggact ggggtgattct gtctggcaga gagtggggaa aagacgcggt ttccagcttg 1828

cagatttggt aagtttctca ggcagatttt gactttcagc ctttcatact tgtttaagca 1888

actatttgta ttaaatgaag ttttttgaaa aaaaaaa 1925

<210> 489  
 <211> 1596  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (42)..(542)

<220>  
 <221> misc\_feature  
 <222> (1)...(1596)  
 <223> n = a,t,c or g

<400> 489  
 atttggccct cgaggccaag aattcggcac gagcgactcc c atg cat cgg cta 53  
 Met His Arg Leu  
 1

ata gcc cgg aga caa gct gaa gca aat aag caa cat gta aga tgt cag 101  
 Ile Ala Arg Arg Gln Ala Glu Ala Asn Lys Gln His Val Arg Cys Gln  
 5 10 15 20

aaa tgc ttg gaa ttt gga cat tgg act tat gaa tgc aca gga aaa aga 149  
 Lys Cys Leu Glu Phe Gly His Trp Thr Tyr Glu Cys Thr Gly Lys Arg  
 21 26 31 36

aaa tac cta cat agg ccc tca agg aca gca gaa cta aag aaa gct tta 197  
 Lys Tyr Leu His Arg Pro Ser Arg Thr Ala Glu Leu Lys Lys Ala Leu  
 37 42 47 52

aaa gaa aaa gaa aac aga tta tta ttg caa caa agc att gga gaa acc 245  
 Lys Glu Lys Glu Asn Arg Leu Leu Leu Gln Gln Ser Ile Gly Glu Thr  
 53 58 63 68

aat gta gaa aga aag gcc aag aaa aaa agg tct aag agt gta acc agt	293
Asn Val Glu Arg Lys Ala Lys Lys Lys Arg Ser Lys Ser Val Thr Ser	
69 74 79 84	
tcc agt agc agt agc agt gac agt tct gcc agt gat tct tca tca gag	341
Ser Ser Ser Ser Ser Ser Ser Asp Ser Ser Ala Ser Asp Ser Ser Ser Glu	
85 90 95 100	
agt gaa gaa aca tct acc tct tcc tcc tca gag gac agt gac act gat	389
Ser Glu Glu Thr Ser Thr Ser Ser Ser Ser Glu Asp Ser Asp Thr Asp	
101 106 111 116	
gaa agc tcc tct agt tcc tca tcc tca gcc tcc tcc aca acc tct tcc	437
Glu Ser Ser Ser Ser Ser Ser Ser Ser Ala Ser Ser Thr Thr Ser Ser	
117 122 127 132	
tcc tcc tct gat tca gac tca gat tcc agc tct tcc agt agc agt agc	485
Ser Ser Ser Asp Ser Asp Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser	
133 138 143 148	
acc agc aca gat agc agc tct gac gat gaa cca cca aag aag aag aaa	533
Thr Ser Thr Asp Ser Ser Ser Asp Asp Glu Pro Pro Lys Lys Lys Lys	
149 154 159 164	
aag aaa tag agttgct ccattcatat tggaccgatg gactgaaaac attgatgtga	589
Lys Lys *	
165	
ttcttgaaag ggaatttaga atatgttaag gccaaagtagg ttaactgggtg aacatttcta	649
gaattcaaaa gtttctaaat gttttacatt gtaagagcat agagaatatt aataatggct	709
tatagagaga gacttttatt tgaagggtga atcttggttt ttttatcttt aaaatatatc	769
tctagaactt aaagctgaaa tctgcaaatac tggttggtgtg atgaaactat cttttctctc	829
tgtagaaataa atgccatact ttgttatata tgtagtggt atgtatcaga catattttca	889
ggatgggtgcg tcaggatatc tggcagtgga tttctaatagc ttttggtgtg atgttatgta	949
agatttaata tggtgttact gtaagcttag gagttttcct actattaata aatgtgctct	1009
atttttacat ttatgttcag aaagttatct gactttttgt cctaagtggt atgttcaagg	1069
agcctattaa tatatttata gtttttgaat gctgtaagtt tcaaattgct gtgttacgtc	1129
attcattttc ttctgggtcc ttaagttttt caagttatcc ttttctgagg aaaattatc	1189
tagaggaacc taaaaaggga caaaaaaatt gaaacttctt aggagtctaa tcttggtgcc	1249
ttctgttaaa agtcagtgtg tcagaaaaga aagcagccat gtaagaggct aacttaagta	1309
gaagtgctag aaatatcttt gtgtattaac atgcaataaa aggtaccatt caaagacagg	1369
gggaaaggta ggaagaagag gtaattttta cttgaaaatt agggcatgtt ggtcgccatt	1429
ttattaaaag ctttttttta agcttttcat aaagattgcc tttttgctat tttntgaaa	1489



tttgggtatt nataggtttg gtagggtnac ccggtccaat natgacagtn ctactgnctt 1549  
aatataggag actagggggt aaccaggtgt gttttacata ggggttg 1596

<210> 490  
<211> 1553  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (135)..(821)

<400> 490  
aattgctgct cgcgtacgtc agcttggatc ctctagagcg gccgccacct ctccccagcc 60  
caggagagggc tgcggagccg cagccgccca gaccgcgcag cgcgggagggc aggttccgca 120  
cgaaataaat caga atg agt tat gca gaa aaa ccc gat gaa atc acg aaa 170  
Met Ser Tyr Ala Glu Lys Pro Asp Glu Ile Thr Lys  
1 5 10  
gat gag tgg atg gaa aag ctc aat aac ttg cat gtc cag aga gca gac 218  
Asp Glu Trp Met Glu Lys Leu Asn Asn Leu His Val Gln Arg Ala Asp  
13 18 23 28  
atg aac cgc ctc atc atg aac tac ctg gtc aca gag ggc ttt aag gaa 266  
Met Asn Arg Leu Ile Met Asn Tyr Leu Val Thr Glu Gly Phe Lys Glu  
29 34 39 44  
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Gln	Ser	Leu	Arg	Ser	Asn	Asn	Ile	Ala	Glu	Leu	Ser	Pro	Gly	Ala	Ile	
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aat	tcc	tgt	cga	agt	gaa	tac	cat	gca	gct	ttt	aac	agt	atg	atg	atg	1567
Asn	Ser	Cys	Arg	Ser	Glu	Tyr	His	Ala	Ala	Phe	Asn	Ser	Met	Met	Met	
452					457					462					467	
gaa	cgc	atg	acc	aca	gat	atc	aat	gca	ctg	aag	cgg	cag	tac	tct	cga	1615
Glu	Arg	Met	Thr	Thr	Asp	Ile	Asn	Ala	Leu	Lys	Arg	Gln	Tyr	Ser	Arg	
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att	aaa	aag	aag	caa	cag	cag	cag	gtt	cat	cag	gtg	tac	atc	agg	gca	1663
Ile	Lys	Lys	Lys	Gln	Gln	Gln	Gln	Val	His	Gln	Val	Tyr	Ile	Arg	Ala	
484					489					494					499	
gga	aag	aag	atg	aaa	atg	act	aac	aga	gct	gcc	aag	aat	gct	gtc	atc	1711
Gly	Lys	Lys	Met	Lys	Met	Thr	Asn	Arg	Ala	Ala	Lys	Asn	Ala	Val	Ile	
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cac	atc	cct	ggt	cac	aca	gga	ggg	aaa	ata	tct	cct	gtc	ccc	tac	gaa	1759
His	Ile	Pro	Gly	His	Thr	Gly	Gly	Lys	Ile	Ser	Pro	Val	Pro	Tyr	Glu	
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gac	ctt	aag	acg	aag	ctc	aac	tcc	ccg	tgg	cga	act	cac	atc	cga	gtc	1807
Asp	Leu	Lys	Thr	Lys	Leu	Asn	Ser	Pro	Trp	Arg	Thr	His	Ile	Arg	Val	
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His	Lys	Lys	Asn	Met	Pro	Arg	Thr	Lys	Ser	His	Pro	Gly	Cys	Gly	Asp	
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Thr	Val	Gly	Leu	Ile	Asp	Glu	Gln	Asn	Glu	Ala	Ser	Lys	Thr	Asn	Gly	
564					569					574					579	
ctg	ggg	gca	gca	gag	gca	ttc	ccc	tct	ggt	tgt	aca	gcg	aca	gct	ggg	1951
Leu	Gly	Ala	Ala	Glu	Ala	Phe	Pro	Ser	Gly	Cys	Thr	Ala	Thr	Ala	Gly	

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Arg Glu Gly Ser Ser Pro Glu Gly Ser Thr Arg Arg Thr Ile Glu Gly				
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Gln Ser Pro Glu Pro Val Phe Gly Asp Ala Asp Val Asp Val Ser Ala				
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Val Gln Ala Lys Leu Gly Ala Leu Glu Leu Asn Gln Arg Asp Ala Ala				
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Ala Glu Thr Glu Leu Arg Val His Pro Pro Cys Gln Arg His Cys Pro				
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Glu Pro Pro Ser Ala Pro Glu Glu Asn Lys Ala Thr Ser Lys Ala Pro				
660	665	670	675	
caa ggc agc aac tca aaa acc ccc atc ttt agc cct ttt ccc agc gtc				2239
Gln Gly Ser Asn Ser Lys Thr Pro Ile Phe Ser Pro Phe Pro Ser Val				
676	681	686	691	
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Lys Pro Leu Arg Lys Ser Ala Thr Ala Arg Asn Leu Gly Leu Tyr Gly				
692	697	702	707	
cct aca gaa aga acc cca act gtg cac ttt cct caa atg agt agg agc				2335
Pro Thr Glu Arg Thr Pro Thr Val His Phe Pro Gln Met Ser Arg Ser				
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Phe Ser Lys Pro Gly Gly Gly Asn Ser Gly Thr Lys Lys Arg *				
724	729	734		
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 Met Cys Gly Val Asn Ile Ile Cys Phe  
 1 5  
 cag gaa gca tgg act atg ccc ttt gcc ttc tgt acg aga gag aag ctt 159  
 Gln Glu Ala Trp Thr Met Pro Phe Ala Phe Cys Thr Arg Glu Lys Leu  
 10 15 20 25  
 cct tgg aca gaa ttt gct gag tca gca gag gat ggg ccc acc acc aga 207  
 Pro Trp Thr Glu Phe Ala Glu Ser Ala Glu Asp Gly Pro Thr Thr Arg  
 26 31 36 41  
 ttc tgt cag aag ctg gcg aag aac cat gac atg gtg gtg gtg tct ccc 255  
 Phe Cys Gln Lys Leu Ala Lys Asn His Asp Met Val Val Val Ser Pro  
 42 47 52 57  
 atc ctg gaa cga gac agc gag cat ggg gat gtt ttg tgg aat aca gcc 303  
 Ile Leu Glu Arg Asp Ser Glu His Gly Asp Val Leu Trp Asn Thr Ala  
 58 63 68 73  
 gtg gtg atc tcc aat tcc gga gca gtc ctg gga aag acc agg aaa aac 351  
 Val Val Ile Ser Asn Ser Gly Ala Val Leu Gly Lys Thr Arg Lys Asn  
 74 79 84 89  
 cac atc ccc aga gtg ggt gat ttc aac gag tca act tac tac atg gag 399  
 His Ile Pro Arg Val Gly Asp Phe Asn Glu Ser Thr Tyr Tyr Met Glu  
 90 95 100 105  
 gga aac ctg ggc cac ccc gtg ttc cag acg cag ttc gga agg atc gcg 447  
 Gly Asn Leu Gly His Pro Val Phe Gln Thr Gln Phe Gly Arg Ile Ala  
 106 111 116 121  
 gtg aac att tgc tac ggg cgg cac cac ccc ctc aac tgg ctt atg tac 495  
 Val Asn Ile Cys Tyr Gly Arg His His Pro Leu Asn Trp Leu Met Tyr

122	127	132	137			
agc atc aac ggg gct	gag atc atc ttc aac	ccc tcg gcc acg ata	gga	543		
Ser Ile Asn Gly Ala	Glu Ile Ile Phe Asn	Pro Ser Ala Thr Ile	Gly			
138	143	148	153			
gca ctc agc gag tcc	ctg tgg ccc atc gag	gcc aga aac gca gcc	att	591		
Ala Leu Ser Glu Ser	Leu Trp Pro Ile Glu	Ala Arg Asn Ala Ala	Ile			
154	159	164	169			
gcc aat cac tgc ttc	acc tgc gcc atc aat	cga gtg ggc acc gag	cac	639		
Ala Asn His Cys Phe	Thr Cys Ala Ile Asn	Arg Val Gly Thr Glu	His			
170	175	180	185			
ttc ccg aac gag ttt	acc tcg gga gat gga	aag aaa gct cac cag	gac	687		
Phe Pro Asn Glu Phe	Thr Ser Gly Asp Gly	Lys Lys Ala His Gln	Asp			
186	191	196	201			
ttt ggc tac ttt tat	ggc tcg agc tat gtg	gca gcc cct gac agc	agc	735		
Phe Gly Tyr Phe Tyr	Gly Ser Ser Tyr Val	Ala Ala Pro Asp Ser	Ser			
202	207	212	217			
cgg act cct ggg ctg	tcc cgt agc cgg gat	gga ctg cta gtt gct	aag	783		
Arg Thr Pro Gly Leu	Ser Arg Ser Arg Asp	Gly Leu Leu Val Ala	Lys			
218	223	228	233			
ctc gac cta aac ctc	tgc cag cag gtg aat	gat gtc tgg aac ttc	aag	831		
Leu Asp Leu Asn Leu	Cys Gln Gln Val Asn	Asp Val Trp Asn Phe	Lys			
234	239	244	249			
atg acg ggc agg tat	gag atg tac gca cgg	gag ctc gcc gaa gct	gtc	879		
Met Thr Gly Arg Tyr	Glu Met Tyr Ala Arg	Glu Leu Ala Glu Ala	Val			
250	255	260	265			
aag tcc aac tac agc	ccc acc atc gtg aaa	gag tag ccgg cttcagt	gcc	929		
Lys Ser Asn Tyr Ser	Pro Thr Ile Val Lys	Glu *				
266	271	276				
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 <222> (1361) .. (2419)

<400> 494

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actgggcttt acacatggcc tgagaacagc ttaggcctga acataaggaa cagcttggag	300
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	Met Asp Ile Asp Lys
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gac ctg gag gcc ccg ctg tac ctc acc ccc gag ggc tgg tcc ctc ttc	1423
Asp Leu Glu Ala Pro Leu Tyr Leu Thr Pro Glu Gly Trp Ser Leu Phe	
6 11 16 21	

ctc Leu 22	cag Gln	cgc Arg	tac Tyr	tac Tyr	caa Gln 27	gtg Val	gtc Val	cac His	gaa Glu	ggg Gly 32	gca Ala	gaa Glu	ctc Leu	agg Arg	cac His 37	1471
ctc Leu 38	gac Asp	act Thr	cag Gln	gtc Val	cag Gln 43	cgc Arg	tgt Cys	gag Glu	gac Asp	atc Ile 48	ctg Leu	cag Gln	cag Gln	ctg Leu	cag Gln 53	1519
gcc Ala 54	gtg Val	gta Val	ccc Pro	cag Gln	ata Ile 59	gac Asp	atg Met	gaa Glu	ggg Gly	gat Asp 64	cgc Arg	aac Asn	atc Ile	tgg Trp	atc Ile 69	1567
gtg Val 70	aag Lys	cca Pro	gga Gly	gcc Ala	aag Lys 75	tcc Ser	cgc Arg	gga Gly	cga Arg	ggc Gly 80	atc Ile	atg Met	tgc Cys	atg Met	gac Asp 85	1615
cac His 86	ctg Leu	gag Glu	gag Glu	atg Met	ctg Leu 91	aag Lys	ctg Leu	gtg Val	aac Asn	ggc Gly 96	aac Asn	ccc Pro	gtg Val	gtg Val	atg Met 101	1663
aag Lys 102	gac Asp	ggc Gly	aag Lys	tgg Trp	gtg Val 107	gtg Val	cag Gln	aag Lys	tat Tyr	att Ile 112	gag Glu	cgg Arg	ccc Pro	ctc Leu	ctc Leu 117	1711
atc Ile 118	ttt Phe	ggc Gly	acc Thr	aag Lys	ttt Phe 123	gac Asp	ctc Leu	aga Arg	cag Gln	tgg Trp 128	ttc Phe	ctg Leu	gta Val	act Thr	gac Asp 133	1759
tgg Trp 134	aac Asn	cca Pro	ctt Leu	acc Thr	gtg Val 139	tgg Trp	ttc Phe	tac Tyr	cgc Arg	gac Asp 144	agc Ser	tat Tyr	atc Ile	cgc Arg	ttt Phe 149	1807
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tgc Cys 166	aac Asn	aac Asn	tcc Ser	atc Ile	cag Gln 171	aag Lys	cac His	ctg Leu	gag Glu	aac Asn 176	tca Ser	tgc Cys	cat His	cgg Arg	cat His 181	1903
cca Pro 182	ctg Leu	ctt Leu	ccg Pro	cca Pro	gac Asp 187	aac Asn	atg Met	tgg Trp	tct Ser	agc Ser 192	cag Gln	agg Arg	ttc Phe	cag Gln	gcc Ala 197	1951
cac His 198	ctg Leu	cag Gln	gag Glu	atg Met	ggc Gly 203	gcc Ala	cca Pro	aat Asn	gct Ala	tgg Trp 208	tcc Ser	acc Thr	atc Ile	atc Ile	gtg Val 213	1999
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246 251 256 261	
ccc acg atg gca ccc tcc aca gca gtc act gcc cgg ctc tgt gct ggc	2191
Pro Thr Met Ala Pro Ser Thr Ala Val Thr Ala Arg Leu Cys Ala Gly	
262 267 272 277	
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Val Gln Ala Asp Thr Leu Arg Val Val Ile Asp Arg Met Leu Asp Arg	
278 283 288 293	
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Thr Ser Pro Ala Ser Thr Pro Arg Pro Ser Cys Leu Leu Pro Met Tyr	
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Ser Asp Thr Arg Ala Arg Ser Ser Asp Asp Ser Thr Ala Ser Trp Trp	
326 331 336 341	
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Ala Leu Arg Pro Cys Arg Pro Gln Ala Arg Pro *	
342 347 352	
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<222> (138) .. (1418)

<400> 495

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tgccatctgt ctccgca atg ccc ccc aag aaa cag gct cag gcc ggg ggc 170  
Met Pro Pro Lys Lys Gln Ala Gln Ala Gly Gly  
1 5  
agc aaa aag gcg gag caa aaa aag aag gag aag att atc gaa gac aaa 218  
Ser Lys Lys Ala Glu Gln Lys Lys Lys Glu Lys Ile Ile Glu Asp Lys  
12 17 22 27  
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Thr Phe Gly Leu Lys Asn Lys Lys Gly Ala Lys Gln Gln Lys Phe Ile  
28 33 38 43  
aag gct gtc aca cat caa gtt aaa ttt ggt caa caa aat cca cgt cag 314  
Lys Ala Val Thr His Gln Val Lys Phe Gly Gln Gln Asn Pro Arg Gln  
44 49 54 59  
gta gca cag agt gaa gct gaa aag aaa ttg aag aag gat gac aag aag 362  
Val Ala Gln Ser Glu Ala Glu Lys Lys Leu Lys Lys Asp Asp Lys Lys  
60 65 70 75  
aaa gaa ttg cag gag cta aat gag ctg ttc aaa cct gta gtt gct gct 410  
Lys Glu Leu Gln Glu Leu Asn Glu Leu Phe Lys Pro Val Val Ala Ala  
76 81 86 91  
caa aaa ata agt aaa ggt gca gat ccc aag tct gta gta tgt gca ttc 458  
Gln Lys Ile Ser Lys Gly Ala Asp Pro Lys Ser Val Val Cys Ala Phe  
92 97 102 107  
ttc aag caa gga cag tgt act aaa gga gat aag tgt aag ttc tcc cat 506  
Phe Lys Gln Gly Gln Cys Thr Lys Gly Asp Lys Cys Lys Phe Ser His  
108 113 118 123  
gac ttg act ctg gag aga aaa tgt gaa aag cga agt gtt tac att gat 554  
Asp Leu Thr Leu Glu Arg Lys Cys Glu Lys Arg Ser Val Tyr Ile Asp  
124 129 134 139  
gca aga gat gaa gaa ctt gaa aaa gat act atg gat aat tgg gat gag 602  
Ala Arg Asp Glu Glu Leu Glu Lys Asp Thr Met Asp Asn Trp Asp Glu  
140 145 150 155  
aaa aag ctg gaa gaa gta gtg aac aag aag cac ggt gag gcg gaa aag 650  
Lys Lys Leu Glu Glu Val Val Asn Lys Lys His Gly Glu Ala Glu Lys  
156 161 166 171  
aaa aaa cca aaa act caa ata gtg tgc aag cat ttc ctg gaa gct att 698  
Lys Lys Pro Lys Thr Gln Ile Val Cys Lys His Phe Leu Glu Ala Ile  
172 177 182 187  
gaa aac aac aag tat ggc tgg ttt tgg gta tgc cct gga ggg ggt gat 746

Glu	Asn	Asn	Lys	Tyr	Gly	Trp	Phe	Trp	Val	Cys	Pro	Gly	Gly	Gly	Asp		
188					193					198					203		
att	tgc	atg	tat	cgt	cat	gca	ctt	cct	cct	gga	ttt	gtg	ttg	aaa	aaa		794
Ile	Cys	Met	Tyr	Arg	His	Ala	Leu	Pro	Pro	Gly	Phe	Val	Leu	Lys	Lys		
204					209					214					219		
gat	aaa	aag	aaa	gaa	gag	aaa	gaa	gat	gaa	att	tca	tta	gaa	gat	cta		842
Asp	Lys	Lys	Lys	Glu	Glu	Lys	Glu	Asp	Glu	Ile	Ser	Leu	Glu	Asp	Leu		
220					225					230					235		
att	gag	aga	gag	cgt	tct	gcc	cta	ggg	cca	aat	gtt	acc	aaa	atc	act		890
Ile	Glu	Arg	Glu	Arg	Ser	Ala	Leu	Gly	Pro	Asn	Val	Thr	Lys	Ile	Thr		
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Leu	Glu	Ser	Phe	Leu	Ala	Trp	Lys	Lys	Arg	Lys	Arg	Gln	Glu	Lys	Ile		
252					257					262					267		
gat	aaa	ctt	gaa	caa	gat	atg	gaa	aga	agg	aaa	gct	gac	ttc	aaa	gca		986
Asp	Lys	Leu	Glu	Gln	Asp	Met	Glu	Arg	Arg	Lys	Ala	Asp	Phe	Lys	Ala		
268					273					278					283		
ggg	aaa	gca	cta	gtg	atc	agt	ggg	cgt	gaa	gtg	ttt	gaa	ttt	cgt	cct		1034
Gly	Lys	Ala	Leu	Val	Ile	Ser	Gly	Arg	Glu	Val	Phe	Glu	Phe	Arg	Pro		
284					289					294					299		
gaa	ctg	gtc	aat	gat	gat	gat	gag	gaa	gca	gat	gat	acc	cgc	tac	acc		1082
Glu	Leu	Val	Asn	Asp	Asp	Asp	Glu	Glu	Ala	Asp	Asp	Thr	Arg	Tyr	Thr		
300					305					310					315		
cag	gga	aca	ggg	ggg	gat	gag	gtt	gat	gat	tca	gtg	agt	gta	aat	gac		1130
Gln	Gly	Thr	Gly	Gly	Asp	Glu	Val	Asp	Asp	Ser	Val	Ser	Val	Asn	Asp		
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ata	gat	tta	agc	ctg	tac	atc	cca	aga	gat	gta	gat	gaa	aca	ggg	att		1178
Ile	Asp	Leu	Ser	Leu	Tyr	Ile	Pro	Arg	Asp	Val	Asp	Glu	Thr	Gly	Ile		
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act	gta	gcc	agt	ctt	gaa	aga	ttc	agc	aca	tat	act	tca	gat	aaa	gat		1226
Thr	Val	Ala	Ser	Leu	Glu	Arg	Phe	Ser	Thr	Tyr	Thr	Ser	Asp	Lys	Asp		
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gaa	aac	aaa	tta	agt	gaa	gct	tct	gga	ggg	agg	gct	gaa	aat	ggg	gaa		1274
Glu	Asn	Lys	Leu	Ser	Glu	Ala	Ser	Gly	Gly	Arg	Ala	Glu	Asn	Gly	Glu		
364					369					374					379		
aga	agt	gac	ttg	gaa	gag	gac	aac	gag	agg	gag	gga	acg	gaa	aat	gga		1322
Arg	Ser	Asp	Leu	Glu	Glu	Asp	Asn	Glu	Arg	Glu	Gly	Thr	Glu	Asn	Gly		
380					385					390					395		
gcc	att	gat	gct	gtt	cct	gtt	gat	gaa	aat	ctt	ttc	act	gga	gag	gat		1370
Ala	Ile	Asp	Ala	Val	Pro	Val	Asp	Glu	Asn	Leu	Phe	Thr	Gly	Glu	Asp		
396					401					406					411		
ttg	gat	gaa	cta	gaa	gaa	gaa	tta	aat	aca	ctt	gat	tta	gaa	gaa	tga		1418
Leu	Asp	Glu	Leu	Glu	Glu	Glu	Leu	Asn	Thr	Leu	Asp	Leu	Glu	Glu	*		

412

417

422

427

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1434

&lt;210&gt; 496

&lt;211&gt; 2106

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (81)..(524)

&lt;400&gt; 496

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ccc aat gcc gtg atc acc agg atc atc aag gag gcg ctc ccg gac ggt 158  
 Pro Asn Ala Val Ile Thr Arg Ile Ile Lys Glu Ala Leu Pro Asp Gly  
 11 16 21 26

gtc aac atc tcc aag gag gcc cgg agc gcc atc tcc cgc gcc gcc agc 206  
 Val Asn Ile Ser Lys Glu Ala Arg Ser Ala Ile Ser Arg Ala Ala Ser  
 27 32 37 42

gtc ttc gtg ctg tac gcc aca tcc tgt gct aac aac ttt gca atg aaa 254  
 Val Phe Val Leu Tyr Ala Thr Ser Cys Ala Asn Asn Phe Ala Met Lys  
 43 48 53 58

gga aag cgg aag acg ctg aat gcc agt gat gtg ctc tca gcc atg gaa 302  
 Gly Lys Arg Lys Thr Leu Asn Ala Ser Asp Val Leu Ser Ala Met Glu  
 59 64 69 74

gag atg gag ttc cag cgg ttc gtt acc cca ttg aaa gaa gct ctg gaa 350  
 Glu Met Glu Phe Gln Arg Phe Val Thr Pro Leu Lys Glu Ala Leu Glu  
 75 80 85 90

gca tat agg cgg gag cag aaa ggc aag aag gag gcc tca gag caa aag 398  
 Ala Tyr Arg Arg Glu Gln Lys Gly Lys Lys Glu Ala Ser Glu Gln Lys  
 91 96 101 106

aag aag gac aaa gac aaa aaa aca gac tcg gaa gag caa gac aag agc 446  
 Lys Lys Asp Lys Asp Lys Lys Thr Asp Ser Glu Glu Gln Asp Lys Ser  
 107 112 117 122

agg gat gag gac aat gat gaa gac gaa gaa agg ctg gaa gaa gaa gaa 494  
 Arg Asp Glu Asp Asn Asp Glu Asp Glu Glu Arg Leu Glu Glu Glu Glu  
 123 128 133 138

cag aat gaa gag gaa gaa gta tac aac tga a aagggcggga gactgtggca 545  
 Gln Asn Glu Glu Glu Glu Val Tyr Asn \*

139

144

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cctaaaccat	cctctthaac	tgcttctaaa	atatctctgt	tgccctttct	tagcctthtt	1925
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aggtagtgc	gtgtagthtg	acactgttaa	cttgthaaat	acagtgaata	gtthgtgagt	2045
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 Met Leu Pro Asn Thr Gly  
 1  
 agg ctg gca gga tgt aca gtt ttt atc aca ggt gca agc cgt ggc att 162  
 Arg Leu Ala Gly Cys Thr Val Phe Ile Thr Gly Ala Ser Arg Gly Ile  
 7 12 17 22  
 ggc aaa gct att gca ttg aaa gca gca aag gat gga gca aat att gtt 210  
 Gly Lys Ala Ile Ala Leu Lys Ala Ala Lys Asp Gly Ala Asn Ile Val  
 23 28 33 38  
 att gct gca aag acc gcc cag cca cat cca aaa ctt cta ggc aca atc 258  
 Ile Ala Ala Lys Thr Ala Gln Pro His Pro Lys Leu Leu Gly Thr Ile  
 39 44 49 54  
 tat act gct gct gaa gaa att gaa gca gtt gga gga aag gcc ttg cca 306  
 Tyr Thr Ala Ala Glu Glu Ile Glu Ala Val Gly Gly Lys Ala Leu Pro  
 55 60 65 70  
 tgt att gtt gat gtg aga gat gaa cag cag atc agt gct gca gtg gag 354  
 Cys Ile Val Asp Val Arg Asp Glu Gln Gln Ile Ser Ala Ala Val Glu  
 71 76 81 86  
 aaa gcc atc aag aaa ttt gga gga att gat att ctg gta aat aat gcc 402  
 Lys Ala Ile Lys Lys Phe Gly Gly Ile Asp Ile Leu Val Asn Asn Ala  
 87 92 97 102  
 agt gcc att agt ttg acc aat aca ttg gac aca cct acc aag aga ttg 450  
 Ser Ala Ile Ser Leu Thr Asn Thr Leu Asp Thr Pro Thr Lys Arg Leu  
 103 108 113 118  
 gat ctg atg atg aac gtg aac acc aga ggc acc tac ctt gca tct aaa 498  
 Asp Leu Met Met Asn Val Asn Thr Arg Gly Thr Tyr Leu Ala Ser Lys  
 119 124 129 134  
 gca tgt att cct tat ttg aaa aag agc aaa gtt gct cat atc ctc aat 546  
 Ala Cys Ile Pro Tyr Leu Lys Lys Ser Lys Val Ala His Ile Leu Asn  
 135 140 145 150  
 atc agt cca cca ctg aac cta aat cca gtt tgg ttc aaa cag cac tgt 594  
 Ile Ser Pro Pro Leu Asn Leu Asn Pro Val Trp Phe Lys Gln His Cys  
 151 156 161 166

ggg agg tgg tag gtg gtaggggtgag gggatgggtt gtgcttaatt tgttttgaat 649  
 Gly Arg Trp \*  
 167

taaatctgtg tatgtctgat gtaatcacia tctgcacata acattcatca ttgaattttc 709  
 tatgccaagt cattaagtgg catttggaag gtagattctt catcttttat ctgtaattta 769  
 aaaaattgag gcataattga cattcaataa aatgcacagc tcttaatggg tcagtttgat 829  
 gagttttgag aaatgtatat aaccaacacc caaatcaaga tacagatttt taccattttca 889  
 gaaagctctt tcatttccca atgagtgtgt tttactgtgt gtaattttatt catctataaa 949  
 gttgggttaa aactatctat gagatacttt atttttctta gacaggtatg cacctgtagt 1009  
 cctagctact tgaaaggctg aggtgggagg atcgcttgag cccaggagtt tgaggctgca 1069  
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 <212> DNA  
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 aagccctctt caaggagcat gagctgaaat tgctaaactt tgggagtttt ccgtgacacc 180  
 cttcaaagtg ctcacggtgt ggcatggatc agctggggag ggttgatgtg gttttgccct 240  
 gtggggtatc tatctgtgta cttttgtctg agggaggcaa ctggggccac ttaggccggc 300  
 aggtgcccac tgtgattggt tgacatgata ccaagcaaca ggatcatcca gtcaccttca 360  
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 tggactgtga catagagcca tgtggccaca cttaaattccc cccaccctt ccctgtcca 480  
 caaccgtcat tgtctgttct tgccatccag tggccactgc ctccaccatg gctgaggctt 540  
 tctctaagac aacctctgag gaagaccaga gcatccagga gcccaaagag gccaaactcca 600  
 tgacggccca gaagcagaag aagtgagggc ttcgaggctc ccgtaggcgc catgccaaca 660

gcggcgaggaga tatcttcggg gacagctttg ccgcctatatt cccccgggtg ctgaagcagg 720

ttcaccaggc cctcagcctt tcccaggagg ccgtgagtgt c atg gat tct atg 773  
Met Asp Ser Met  
1

gtt cgt gac ata ctg gac cgc atc gcc acc gag gct ggt cac ctg gcc 821  
Val Arg Asp Ile Leu Asp Arg Ile Ala Thr Glu Ala Gly His Leu Ala  
5 10 15 20

cac tac tcc aag tgc gtg acc atc acc tcc cgg gac att cgg atg gcc 869  
His Tyr Ser Lys Cys Val Thr Ile Thr Ser Arg Asp Ile Arg Met Ala  
21 26 31 36

gtg tgc ctg ctg ctg ccg ggg aag atg ggc aag ctc gct gag tct cag 917  
Val Cys Leu Leu Leu Pro Gly Lys Met Gly Lys Leu Ala Glu Ser Gln  
37 42 47 52

ggc acg aat gcc acc ctc agg tac acc aaa agc aag tga gctatctcag 966  
Gly Thr Asn Ala Thr Leu Arg Tyr Thr Lys Ser Lys \*  
53 58 63

gagcgcgccga gcacccggga aagccaaatg ctctgttcag aaccaccaca cgtggcccta 1026

aagaccagtg gcctgccaag gaggggaccc cactggagat tgggggtgggt ggcaccgttc 1086

tggcttgggg agcatgtggc gtgtggcctt ctgcggtttt tcaagcattt tccccacagt 1146

gcaaaacact gtcaactcca atacatctgt agtgcaatat gctccaagga aaagtagggg 1206

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tttctaggct atc 1279

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<400> 499

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ccaagtggat cagcctgctg aactgtcggc taggggtata ggtggttctg agtccttccg 180

gaagctgccg aatcttagaa gtcgcgccac tgttgtggcg atggaagaag gcgaagctct 240

acagaaacca ttttggttga gggaagagtg gttttaaaagt taatttggaaggagccggc 300



aagcaacctt cagtcggtgt gcggttttta cagttgaact gtttccagcc gctaattatg 360  
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cgaggatgga gaagcctggg cggacatatt tattagctgc ggtcctaagt cacgtgtgac 480  
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cttgagatgt ccccgcccta ttcgccatct taacataggg cattccccac agctgcaggc 600  
accagtgaag cgtctaaggg accatcttgg ttgagggcgg aagtgaggac tgtgtcgcgc 660  
tggaggagcc cacagattct cccggaccca cgtggaagcg gcactcaag atg ctg 715  
Met Leu  
1

cgc cgc gag gcc cgc ctg cgc cgc gag tac ctg tac cgc aag gcc cgg 763  
Arg Arg Glu Ala Arg Leu Arg Arg Glu Tyr Leu Tyr Arg Lys Ala Arg  
3 8 13 18

gag gag gcg cag cgc tca gcc cag gag agg aag gag cgg ctg cgg cgc 811  
Glu Glu Ala Gln Arg Ser Ala Gln Glu Arg Lys Glu Arg Leu Arg Arg  
19 24 29 34

gcg ctg gaa gaa aac cgc ctg att ccc act gag tta cgc cga gag gct 859  
Ala Leu Glu Glu Asn Arg Leu Ile Pro Thr Glu Leu Arg Arg Glu Ala  
35 40 45 50

ctg gcc tta cag ggg tcc ctg gag ttt gat gat gct gga ggt gaa ggt 907  
Leu Ala Leu Gln Gly Ser Leu Glu Phe Asp Asp Ala Gly Gly Glu Gly  
51 56 61 66

gtg acc agc cac gtg gat gat gaa tac cga tgg gca gga gtc gag gat 955  
Val Thr Ser His Val Asp Asp Glu Tyr Arg Trp Ala Gly Val Glu Asp  
67 72 77 82

ccc aag gtt atg atc act acc tcc cga gac ccc agt tcc cgc ctc aag 1003  
Pro Lys Val Met Ile Thr Thr Ser Arg Asp Pro Ser Ser Arg Leu Lys  
83 88 93 98

atg ttt gca aag gag ctg aag ctg gtg ttc ccg ggc gcc cag cga atg 1051  
Met Phe Ala Lys Glu Leu Lys Leu Val Phe Pro Gly Ala Gln Arg Met  
99 104 109 114

aac cga ggt cga cat gaa gtg ggg gca ctg gtg cga gcc tgc aaa gcc 1099  
Asn Arg Gly Arg His Glu Val Gly Ala Leu Val Arg Ala Cys Lys Ala  
115 120 125 130

aac ggc gtc acc gat ctg ctg gtc gtt cac gag cat cgg ggc aca cct 1147  
Asn Gly Val Thr Asp Leu Leu Val Val His Glu His Arg Gly Thr Pro  
131 136 141 146

gtg ggg ctc atc gtc agc cac ctg ccc ttt ggt cct act gcc tac ttc 1195  
Val Gly Leu Ile Val Ser His Leu Pro Phe Gly Pro Thr Ala Tyr Phe  
147 152 157 162

acg ctg tgc aat gtg gtc atg cgg cat gac atc cca gac ctg ggc acc	1243
Thr Leu Cys Asn Val Val Met Arg His Asp Ile Pro Asp Leu Gly Thr	
163 168 173 178	
atg tcg gag gcc aag ccc cac ctc atc aca cac ggc ttc tcc tcc cgc	1291
Met Ser Glu Ala Lys Pro His Leu Ile Thr His Gly Phe Ser Ser Arg	
179 184 189 194	
ctg ggc aag cgg gtc tct gac atc ctc cga tac cta ttt ccc gtg ccc	1339
Leu Gly Lys Arg Val Ser Asp Ile Leu Arg Tyr Leu Phe Pro Val Pro	
195 200 205 210	
aaa gat gac agc cac cgg gtc atc acc ttc gca aac cag gac gac tac	1387
Lys Asp Asp Ser His Arg Val Ile Thr Phe Ala Asn Gln Asp Asp Tyr	
211 216 221 226	
ata tca ttc cgg cac cat gtg tat aag aag aca gac cac cgc aac gtg	1435
Ile Ser Phe Arg His His Val Tyr Lys Lys Thr Asp His Arg Asn Val	
227 232 237 242	
gag ctc act gag gtc ggg ccc cgc ttt gag ctg aag ctg tac atg atc	1483
Glu Leu Thr Glu Val Gly Pro Arg Phe Glu Leu Lys Leu Tyr Met Ile	
243 248 253 258	
cgt ctg ggc acg ctg gag cag gag gcc aca gca gac gtg gag tgg cgc	1531
Arg Leu Gly Thr Leu Glu Gln Glu Ala Thr Ala Asp Val Glu Trp Arg	
259 264 269 274	
tgg cac cct tac acc aat acc gca cgc aag aga gtc ttc ctg agc acc	1579
Trp His Pro Tyr Thr Asn Thr Ala Arg Lys Arg Val Phe Leu Ser Thr	
275 280 285 290	
gag tga gcacactcac cactcagtca ggacatggac ttggaactca ggatggggct	1635
Glu *	
291	
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cgcaccaggc agtncctagt ggagagaggc cctac atg tgt gtt gag tgt ggg 173  
Met Cys Val Glu Cys Gly  
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aag tgc ttt ggc cgg agt tcc cac ctc ctt cag cat cag cgt atc cac 221  
Lys Cys Phe Gly Arg Ser Ser His Leu Leu Gln His Gln Arg Ile His  
7 12 17 22  
act gga gag aag ccc tat gtg tgc agt gta tgt ggg aag gcc ttc agc 269  
Thr Gly Glu Lys Pro Tyr Val Cys Ser Val Cys Gly Lys Ala Phe Ser  
23 28 33 38  
cag agc tca gtc ctt agt aaa cac agg aga att cac aca ggt gag aag 317  
Gln Ser Ser Val Leu Ser Lys His Arg Arg Ile His Thr Gly Glu Lys  
39 44 49 54  
ccc tat gag tgt aat gag tgt gga aaa gcc ttt aga gtg agc tca gat 365  
Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Arg Val Ser Ser Asp  
55 60 65 70  
ctt gct cag cat cac aag ata cat aca gga gag aag cct cac gaa tgt 413  
Leu Ala Gln His His Lys Ile His Thr Gly Glu Lys Pro His Glu Cys  
71 76 81 86  
ctt gag tgt cgg aaa gcc ttc act caa ctc tca cat ctc att cag cac 461  
Leu Glu Cys Arg Lys Ala Phe Thr Gln Leu Ser His Leu Ile Gln His  
87 92 97 102  
cag cgg atc cac acg gga gaa agg cca tat gtg tgt ccg ttg tgt ggg 509  
Gln Arg Ile His Thr Gly Glu Arg Pro Tyr Val Cys Pro Leu Cys Gly  
103 108 113 118  
aaa gcc ttc aac cat agc act gtt ctg cgg agc cac cag agg gta cac 557  
Lys Ala Phe Asn His Ser Thr Val Leu Arg Ser His Gln Arg Val His  
119 124 129 134  
act ggg gag aag cct cac agg tgc aat gag tgt ggg aaa acc ttc agt 605  
Thr Gly Glu Lys Pro His Arg Cys Asn Glu Cys Gly Lys Thr Phe Ser  
135 140 145 150  
gtg aag agg aca ctg ctg cag cac cag agg atc cac acc ggg gag aag 653  
Val Lys Arg Thr Leu Leu Gln His Gln Arg Ile His Thr Gly Glu Lys  
151 156 161 166  
ccc tac acg tgc agc gag tgt ggg aag gcc ttc agc gac cgc tca gtc 701  
Pro Tyr Thr Cys Ser Glu Cys Gly Lys Ala Phe Ser Asp Arg Ser Val  
167 172 177 182  
ctc att cag cac cac aac gtg cac acc ggg gag aag ccc tat gag tgc 749  
Leu Ile Gln His His Asn Val His Thr Gly Glu Lys Pro Tyr Glu Cys  
183 188 193 198



26	31	36	41	
cgg cgg ctg ggt gtg gcg gag agt tgg acg cgc gac cgg cac tgt gcc				615
Arg Arg Leu Gly Val Ala Glu Ser Trp Thr Arg Asp Arg His Cys Ala				
42	47	52	57	
gcc gac ctc gcc ctg gcc ccg ctg ggg gat gcc caa ctg gtc ctg ctc				663
Ala Asp Leu Ala Leu Ala Pro Leu Gly Asp Ala Gln Leu Val Leu Leu				
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cgg cca cgg cgg ctt atg aac gcc aac ggg cgc agc gtg gcc cgg gct				711
Arg Pro Arg Arg Leu Met Asn Ala Asn Gly Arg Ser Val Ala Arg Ala				
74	79	84	89	
gcg gag ctg ttt ggg ctg act gcc gag gaa gtc tac ctg gtg cat gat				759
Ala Glu Leu Phe Gly Leu Thr Ala Glu Glu Val Tyr Leu Val His Asp				
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gag ctg gac aag ccc ctg ggg aga ctg gct ctg aag ctg ggg ggc agt				807
Glu Leu Asp Lys Pro Leu Gly Arg Leu Ala Leu Lys Leu Gly Gly Ser				
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gcc agg ggc cac aat gga gtc cgt tcc tgc att agc tgc ctc aac tcc				855
Ala Arg Gly His Asn Gly Val Arg Ser Cys Ile Ser Cys Leu Asn Ser				
122	127	132	137	
aat gca atg cca agg ctg cgg gtg ggt atc ggg cgc ccg gcg cac cct				903
Asn Ala Met Pro Arg Leu Arg Val Gly Ile Gly Arg Pro Ala His Pro				
138	143	148	153	
gag gcg gtt cag gcc cat gtg ctg ggc tgc ttc tcc cct gct gag cag				951
Glu Ala Val Gln Ala His Val Leu Gly Cys Phe Ser Pro Ala Glu Gln				
154	159	164	169	
gag ctg ctg cct ctg ttg ctg gat cga gcc acc gac ctg atc ttg gac				999
Glu Leu Leu Pro Leu Leu Leu Asp Arg Ala Thr Asp Leu Ile Leu Asp				
170	175	180	185	
cac atc cgt gag cga agc cag ggg ccc tca ctg ggg ccg tga cactagt				1048
His Ile Arg Glu Arg Ser Gln Gly Pro Ser Leu Gly Pro *				
186	191	196		
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Met Ala Ala Pro Val Lys Gly Asn  
1 5

agg aag cag tcc acg gag ggt gac gcc cta gac cca cct gca tcc ccc 159  
Arg Lys Gln Ser Thr Glu Gly Asp Ala Leu Asp Pro Pro Ala Ser Pro  
9 14 19 24

aaa cct gct ggc aag cag aac gga atc cag aac ccc atc tcg ctg gag 207  
Lys Pro Ala Gly Lys Gln Asn Gly Ile Gln Asn Pro Ile Ser Leu Glu  
25 30 35 40

gac tcc ccc gag gca ggc ggg gag cgg gag gag gag cag gag cgg gag 255  
Asp Ser Pro Glu Ala Gly Gly Glu Arg Glu Glu Glu Gln Glu Arg Glu  
41 46 51 56

gag gag cag gcc ttc ctg gtc agc ctc tac aag ttc atg aag gag cga 303  
Glu Glu Gln Ala Phe Leu Val Ser Leu Tyr Lys Phe Met Lys Glu Arg  
57 62 67 72

cac acg ccc atc gag agg gtg ccc cat ctc ggc ttc aag cag att aac 351  
His Thr Pro Ile Glu Arg Val Pro His Leu Gly Phe Lys Gln Ile Asn  
73 78 83 88

ctg tgg aag atc tac aaa gca gtg gag aag ctg ggg gcc tat gag ctg 399  
Leu Trp Lys Ile Tyr Lys Ala Val Glu Lys Leu Gly Ala Tyr Glu Leu  
89 94 99 104

gtg acc ggg cgc cgc ctc tgg aag aac gtg tac gac gag ctg ggg ggc 447  
Val Thr Gly Arg Arg Leu Trp Lys Asn Val Tyr Asp Glu Leu Gly Gly  
105 110 115 120

agc cca ggc agc acc agc gcg gcc acg tgc acg cgc cgc cac tac gag 495  
Ser Pro Gly Ser Thr Ser Ala Ala Thr Cys Thr Arg Arg His Tyr Glu  
121 126 131 136

agg ctg gtc ctg cca tac gtg cgg cac ctg aag ggg gag gat gac aag 543  
Arg Leu Val Leu Pro Tyr Val Arg His Leu Lys Gly Glu Asp Asp Lys  
137 142 147 152

ccg ctg ccc acc tcc aag ccc agg aaa cag tac aag atg gct aag gag 591  
Pro Leu Pro Thr Ser Lys Pro Arg Lys Gln Tyr Lys Met Ala Lys Glu  
153 158 163 168

aac agg ggg gat gat ggg gcc acc gag agg ccg aag aag gcc aag gag 639  
Asn Arg Gly Asp Asp Gly Ala Thr Glu Arg Pro Lys Lys Ala Lys Glu  
169 174 179 184

gag cgg cgc atg gac cag atg atg cca gga aag acc aaa gca gat gct 687  
Glu Arg Arg Met Asp Gln Met Met Pro Gly Lys Thr Lys Ala Asp Ala  
185 190 195 200

gct gac cca gca cca ctt ccc agc cag gag ccc ccc agg aac agc aca	735
Ala Asp Pro Ala Pro Leu Pro Ser Gln Glu Pro Pro Arg Asn Ser Thr	
201 206 211 216	
gaa cag cag ggc ctg gcc tct ggg tct tct gtg tcc ttt gtg ggt gcc	783
Glu Gln Gln Gly Leu Ala Ser Gly Ser Ser Val Ser Phe Val Gly Ala	
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Ser Gly Cys Pro Glu Ala Tyr Lys Arg Leu Leu Ser Ser Phe Tyr Cys	
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Lys Gly Thr His Gly Ile Met Ser Pro Leu Ala Lys Lys Lys Leu Leu	
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Ala Gln Val Ser Lys Val Glu Ala Leu Gln Cys Gln Glu Glu Gly Cys	
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cgc cat ggg gca gag ccc cag gcg tcc cca gct gtt cac ctc cca gag	975
Arg His Gly Ala Glu Pro Gln Ala Ser Pro Ala Val His Leu Pro Glu	
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agt ccc cag agc ccc aaa ggg ctg act gag aac tcc agg cac cgg ctg	1023
Ser Pro Gln Ser Pro Lys Gly Leu Thr Glu Asn Ser Arg His Arg Leu	
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Thr Pro Gln Glu Gly Leu Gln Ala Pro Gly Gly Ser Leu Arg Glu Glu	
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Ala Gln Ala Gly Pro Cys Pro Ala Ala Pro Ile Phe Lys Gly Cys Phe	
329 334 339 344	
tac acc cac ccc acc gag gtg ctg aag cct gtc agc cag cac ccc agg	1167
Tyr Thr His Pro Thr Glu Val Leu Lys Pro Val Ser Gln His Pro Arg	
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gac ttc ttc tct aga ctt aaa gat ggg gtg cta ttg ggg cct cct ggc	1215
Asp Phe Phe Ser Arg Leu Lys Asp Gly Val Leu Leu Gly Pro Pro Gly	
361 366 371 376	
aaa gag ggg ctg tca gtg aaa gag ccc cag ctg gtg tgg ggc gga gac	1263
Lys Glu Gly Leu Ser Val Lys Glu Pro Gln Leu Val Trp Gly Gly Asp	
377 382 387 392	
gct aac cgc cct tct gcg ttc cat aaa ggt ggc tcc aga aag ggc atc	1311
Ala Asn Arg Pro Ser Ala Phe His Lys Gly Gly Ser Arg Lys Gly Ile	
393 398 403 408	
ctc tac ccc aag ccc aaa gcc tgc tgg gtg tcc ccc atg gcc aag gtc	1359
Leu Tyr Pro Lys Pro Lys Ala Cys Trp Val Ser Pro Met Ala Lys Val	
409 414 419 424	

cca gcc gag agc ccc acg ctc ccg ccc acc ttc ccc agt agc cca ggc	1407
Pro Ala Glu Ser Pro Thr Leu Pro Pro Thr Phe Pro Ser Ser Pro Gly	
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Leu Gly Ser Lys Arg Ser Leu Glu Glu Glu Gly Ala Ala His Ser Gly	
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Lys Arg Leu Arg Ala Val Ser Pro Phe Leu Lys Glu Ala Asp Ala Lys	
457 462 467 472	
aag tgt ggg gcc aaa cct gca ggg tcc ggc ctg gtc tcc tgc ctt ctg	1551
Lys Cys Gly Ala Lys Pro Ala Gly Ser Gly Leu Val Ser Cys Leu Leu	
473 478 483 488	
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Gly Pro Ala Leu Gly Pro Val Pro Pro Glu Ala Tyr Arg Gly Thr Met	
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Leu His Cys Pro Leu Asn Phe Thr Gly Thr Pro Gly Pro Leu Lys Gly	
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cag gct gca ctc ccc ttc agc ccc ctg gtc atc ccg gcc ttc ccg gcc	1695
Gln Ala Ala Leu Pro Phe Ser Pro Leu Val Ile Pro Ala Phe Pro Ala	
521 526 531 536	
cac ttc ctg gcc acc gca ggg ccc ctc gcc cat ggc cgc tgg cct gat	1743
His Phe Leu Ala Thr Ala Gly Pro Leu Ala His Gly Arg Trp Pro Asp	
537 542 547 552	
gca ctt ccc ccc aac gtc ctt cga cag tgc cct ccg cca cag act ttg	1791
Ala Leu Pro Pro Asn Val Leu Arg Gln Cys Pro Pro Pro Gln Thr Leu	
553 558 563 568	
ccc ggc ctc atc tgc ctg gca cgc acc acc agt cac aac cta tgc agc	1839
Pro Gly Leu Ile Cys Leu Ala Arg Thr Thr Ser His Asn Leu Cys Ser	
569 574 579 584	
gcc cca ctt ctt cca cct caa cac caa gct gta ggc cag ccc atg gtg	1887
Ala Pro Leu Leu Pro Pro Gln His Gln Ala Val Gly Gln Pro Met Val	
585 590 595 600	
ttg tgt aca ctg tgg agt cga cag ggg cct aca aca ggc agg tac tgc	1935
Leu Cys Thr Leu Trp Ser Arg Gln Gly Pro Thr Thr Gly Arg Tyr Cys	
601 606 611 616	
tgc cag ggg gct ctg aac tag tg cctgctaccc aggacacccg ggccatgccc	1988
Cys Gln Gly Ala Leu Asn *	
617 622	
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aggcagcagc ctgagcccag gagcagagga cccagttggtt ataaggcgct gggagaggat	2108
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tacatatctc gcagccaggc gggctctggg agaggcgcca gccaggcctg gtcggcgccc 180  
gcggagaaaa gaagcagtca agcccatgaa ctacaacccc ggttgccgct ttctcctctc 240  
ctaaccgtta agtgcgctaa gggcc atg gct gag gtg cac gtg atc ggg cag 292  
Met Ala Glu Val His Val Ile Gly Gln  
1 5  
atc ata ggg gcc agc ggt ttc tcg gaa agt agc ctc ttc tgc aag tgg 340  
Ile Ile Gly Ala Ser Gly Phe Ser Glu Ser Ser Leu Phe Cys Lys Trp  
10 15 20 25  
ggc att cac aca ggg gcg gca tgg aag ctc ctg tca ggc gtg cgg gag 388  
Gly Ile His Thr Gly Ala Ala Trp Lys Leu Leu Ser Gly Val Arg Glu  
26 31 36 41  
ggc caa acg caa gtg gac acc ccg cag ata ggg gac atg gct tac tgg 436  
Gly Gln Thr Gln Val Asp Thr Pro Gln Ile Gly Asp Met Ala Tyr Trp  
42 47 52 57  
tcc cac ccc atc gac ctg cac ttc gcc acc aaa ggt ctt caa ggc tgg 484  
Ser His Pro Ile Asp Leu His Phe Ala Thr Lys Gly Leu Gln Gly Trp  
58 63 68 73  
ccc cgg ctc cat ttc cag gtg tgg tcc cag gac agc ttt ggc cgc tgc 532  
Pro Arg Leu His Phe Gln Val Trp Ser Gln Asp Ser Phe Gly Arg Cys  
74 79 84 89  
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Gln Leu Ala Gly Tyr Gly Phe Cys His Val Pro Ser Ser Pro Gly Thr  
90 95 100 105  
cac cag ctg gcc tgc ccc acg tgg cgg ccc ctg ggc agt tgg cga gaa 628  
His Gln Leu Ala Cys Pro Thr Trp Arg Pro Leu Gly Ser Trp Arg Glu  
106 111 116 121  
cag ttg gca cgg gct ttc gtg ggt ggt ggg ccg cag ctg ctg cat ggg 676

Gln Leu Ala Arg Ala Phe Val Gly Gly Gly Pro Gln Leu Leu His Gly	
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Asp Thr Ile Tyr Ser Gly Ala Asp Arg Tyr Arg Leu His Thr Ala Ala	
138 143 148 153	
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Gly Gly Thr Val His Leu Glu Ile Gly Leu Leu Leu Arg Asn Phe Asp	
154 159 164 169	
cgc tac ggc gtg gag tgc tga gg gactctgcct ccaacatcac caccatccac	825
Arg Tyr Gly Val Glu Cys *	
170 175	
accccgagaca ccagtgatg ggggaggatg gcacagtggc caagagcaca gactctagag	885
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ccagcctgac tctccttccg ttctgggtcc ccctcatctg gtcggctccc ctgtgtctca	1245
tcccccgacg aaatcgtcga cccgggacac gatggcc	1282
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tgcagtcact gttacttggg tcagatcaag cgcagagact ttttgggatc cagtgggtat	180
tctccacact tcggagccat ttcaaccaac tctgagcaca aa atg cag cca tcc	234
	Met Gln Pro Ser
	1
tct atg cag cag gcc ctg ccc agt cag cga ccc tac tgg aca gat cca	282
Ser Met Gln Gln Ala Leu Pro Ser Gln Arg Pro Tyr Trp Thr Asp Pro	
5 10 15 20	

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Arg Pro Ala Leu Val Pro Cys Cys Ser His Arg Pro Asp Val His Arg	
21 26 31 36	
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Ser Arg Pro Gly Pro Gly Leu Pro Gly Thr Gly Gly Cys Ser Asp Arg	
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Pro Pro Ala Cys Pro Ile *	
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Met Ala Leu Leu Leu Cys Leu Val Cys Leu Thr	
1 5	
gcg gcg ctg gcc cac ggc tgt ctg cac tgc cac agc aac ttc tcc aag	157
Ala Ala Leu Ala His Gly Cys Leu His Cys His Ser Asn Phe Ser Lys	
12 17 22 27	
aag ttc tcc ttc tac cgc cac cat gtg aac ttc aag tcc tgg tgg gtg	205
Lys Phe Ser Phe Tyr Arg His His Val Asn Phe Lys Ser Trp Trp Val	
28 33 38 43	
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Gly Asp Ile Pro Val Ser Gly Ala Leu Leu Thr Asp Trp Ser Asp Asp	
44 49 54 59	
acg atg aag gag ctg cac ctg gcc atc ccc gcc aag atc acc cgg gag	301
Thr Met Lys Glu Leu His Leu Ala Ile Pro Ala Lys Ile Thr Arg Glu	
60 65 70 75	
aag ctg gac caa gtg gcg aca gca gtg tac cag atg atg gat cag ctg	349
Lys Leu Asp Gln Val Ala Thr Ala Val Tyr Gln Met Met Asp Gln Leu	
76 81 86 91	
tac cag ggg aag atg tac ttc ccc ggg tat ttc ccc aac gag ctg cga	397
Tyr Gln Gly Lys Met Tyr Phe Pro Gly Tyr Phe Pro Asn Glu Leu Arg	
92 97 102 107	



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tgg gac tgg gtg cct ctg gcg tgc aga agc ttc tct ctt ggt gtg cct 216
Trp Asp Trp Val Pro Leu Ala Cys Arg Ser Phe Ser Leu Gly Val Pro
14             19             24             29

aga ttg atc ggt ata agg ctc act ctc ccg ccc ccc aaa gtg gtt gat 264
Arg Leu Ile Gly Ile Arg Leu Thr Leu Pro Pro Pro Lys Val Val Asp
30             35             40             45

cgt tgg aac gag aaa agg gcc atg ttc gga gtg tat gac aac atc ggg 312
Arg Trp Asn Glu Lys Arg Ala Met Phe Gly Val Tyr Asp Asn Ile Gly
46             51             56             61

atc ctg gga aac ttt gaa aag cac ccc aaa gaa ctg atc agg ggg ccc 360
Ile Leu Gly Asn Phe Glu Lys His Pro Lys Glu Leu Ile Arg Gly Pro
62             67             72             77

ata tgg ctt cga ggt tgg aaa ggg aat gaa ttg caa cgt tgt atc cga 408
Ile Trp Leu Arg Gly Trp Lys Gly Asn Glu Leu Gln Arg Cys Ile Arg
78             83             88             93

aag agg aaa atg gtt gga agt aga ata ttc gct gat gac ctg cac aac 456
Lys Arg Lys Met Val Gly Ser Arg Ile Phe Ala Asp Asp Leu His Asn
94             99             104             109

ctt aat aaa cgc atc cgc tat ctc tac aaa cac ttt aac cga cat ggg 504
Leu Asn Lys Arg Ile Arg Tyr Leu Tyr Lys His Phe Asn Arg His Gly
110            115            120            125

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Lys Phe Arg  *
126

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aatggggctt ctttggaaaa aaaaaaaaaa 649

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Ala	Gly	Met	Cys	Leu	Arg	Cys	Ser	Ala	Cys	Ala	Leu	Asn	Ser	Val	Val	
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Gln	Ser	Val	Leu	Ser	Lys	Arg	Thr	Leu	Gln	Ala	Arg	Ser	Met	His	Glu	
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gtc	atc	gag	ctg	ctc	aac	gtg	tgc	gag	gac	ctg	gcg	ggc	tcc	acg	ggc	995
Val	Ile	Glu	Leu	Leu	Asn	Val	Cys	Glu	Asp	Leu	Ala	Gly	Ser	Thr	Gly	
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Leu	Ala	Lys	Glu	Thr	Phe	Gly	Ser	Leu	Glu	Glu	Thr	Ser	Pro	Pro	Pro	
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gag	cag	atc	tgc	gag	ttc	tac	agc	cgg	gcc	aag	aag	atg	aac	ctc	atc	1139
Glu	Gln	Ile	Cys	Glu	Phe	Tyr	Ser	Arg	Ala	Lys	Lys	Met	Asn	Leu	Ile	
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Gln	Ser	Leu	Asn	Lys	His	Leu	Leu	Ser	Asn	Leu	Ala	Ala	Ile	Leu	Thr	
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ccg	gtg	aag	cag	gca	gtc	atc	gag	ctg	agc	aac	gag	agc	cag	ccc	acc	1235
Pro	Val	Lys	Gln	Ala	Val	Ile	Glu	Leu	Ser	Asn	Glu	Ser	Gln	Pro	Thr	
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Leu	Gln	Leu	Val	Leu	Pro	Thr	Tyr	Val	Arg	Leu	Glu	Lys	Leu	Phe	Thr	
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Ala	Lys	Ala	Asn	Asp	Ala	Gly	Thr	Val	Ser	Lys	Leu	Cys	His	Leu	Phe	
367					372					377					382	
ctg	gag	gcg	ctc	aag	gag	aac	ttc	aag	gtg	cac	ccg	gcc	cac	aag	gtg	1379
Leu	Glu	Ala	Leu	Lys	Glu	Asn	Phe	Lys	Val	His	Pro	Ala	His	Lys	Val	
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399					404					409					414	
cag	cac	gag	gag	atc	atc	ggc	aag	gtc	tgt	gag	ctc	atc	aac	gag	gtg	1475
Gln	His	Glu	Glu	Ile	Ile	Gly	Lys	Val	Cys	Glu	Leu	Ile	Asn	Glu	Val	
415					420					425					430	
aag	gag	tcc	tgg	gcc	gag	gag	gcc	gac	ttc	gag	ccc	gct	gcc	aag	aag	1523
Lys	Glu	Ser	Trp	Ala	Glu	Glu	Ala	Asp	Phe	Glu	Pro	Ala	Ala	Lys	Lys	

431	436	441	446	
ccc cgc tct gct gcc gtc gag aac ccc gca gct cag gaa gat gat cgg				1571
Pro Arg Ser Ala Ala Val Glu Asn Pro Ala Ala Gln Glu Asp Asp Arg				
447	452	457	462	
cta ggc aaa aat gaa gtg tac gat tac ctg cag gag ccc ctc ttc cag				1619
Leu Gly Lys Asn Glu Val Tyr Asp Tyr Leu Gln Glu Pro Leu Phe Gln				
463	468	473	478	
gct acc cct gat ctc ttc cag tac tgg tcg tgc gtt acc caa aag cac				1667
Ala Thr Pro Asp Leu Phe Gln Tyr Trp Ser Cys Val Thr Gln Lys His				
479	484	489	494	
aca aaa ctc gcc aag ctc gcc ttc tgg ctc ctg gcg gtt ccg gcc gtg				1715
Thr Lys Leu Ala Lys Leu Ala Phe Trp Leu Leu Ala Val Pro Ala Val				
495	500	505	510	
ggc gcc aga agc ggg tgt gta aat atg tgt gaa caa gcg ctt cta atc				1763
Gly Ala Arg Ser Gly Cys Val Asn Met Cys Glu Gln Ala Leu Leu Ile				
511	516	521	526	
aaa cgg agg cgg ctg ctc agt cca gaa gat atg aat aaa ctc atg ttt				1811
Lys Arg Arg Arg Leu Leu Ser Pro Glu Asp Met Asn Lys Leu Met Phe				
527	532	537	542	
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aagggacttt gcatattggt tttgcatctc atttacttct ccattgggtc aggataaaga	180
tggggaatcc cctcctctcc aaacctgccc ccaaaccctt ccttcttgaa ccagaactct	240
cctctccccg gtactccttc ctggaccgag ctggaagccc tggcggcggc ggccc atg	298
	Met
	1
ggg ccc ttg gcg ctg ccc gcc tgg ctg cag ccc agg tat agg aag aat	346



Gly	Pro	Leu	Ala	Leu	Pro	Ala	Trp	Leu	Gln	Pro	Arg	Tyr	Arg	Lys	Asn	
2					7					12					17	
gcg	tat	ctt	ttc	atc	tat	tac	tta	atc	cag	ttc	tgt	ggc	cac	tct	tgg	394
Ala	Tyr	Leu	Phe	Ile	Tyr	Tyr	Leu	Ile	Gln	Phe	Cys	Gly	His	Ser	Trp	
18					23					28					33	
ata	ttt	aca	aat	atg	aca	gtc	aga	ttc	ttt	tca	ttt	gga	aaa	gat	tca	442
Ile	Phe	Thr	Asn	Met	Thr	Val	Arg	Phe	Phe	Ser	Phe	Gly	Lys	Asp	Ser	
34					39					44					49	
atg	gtt	gac	act	ttt	tat	gct	att	gga	ctt	gtg	atg	cga	ctt	tgc	caa	490
Met	Val	Asp	Thr	Phe	Tyr	Ala	Ile	Gly	Leu	Val	Met	Arg	Leu	Cys	Gln	
50					55					60					65	
tcc	gta	tct	ctc	ctg	gaa	ctg	ctg	cac	ata	tat	gtt	ggc	att	gag	tca	538
Ser	Val	Ser	Leu	Leu	Glu	Leu	Leu	His	Ile	Tyr	Val	Gly	Ile	Glu	Ser	
66					71					76					81	
aac	cat	ctt	ctc	cca	agg	ttt	ttg	cag	ctc	aca	gaa	aga	ata	atc	atc	586
Asn	His	Leu	Leu	Pro	Arg	Phe	Leu	Gln	Leu	Thr	Glu	Arg	Ile	Ile	Ile	
82					87					92					97	
ctt	ttt	gtg	gtg	atc	acc	agt	caa	gag	gaa	gtc	caa	gag	aaa	tat	gtg	634
Leu	Phe	Val	Val	Ile	Thr	Ser	Gln	Glu	Glu	Val	Gln	Glu	Lys	Tyr	Val	
98					103					108					113	
gtg	tgt	gtt	tta	ttc	gtc	ttt	tgg	aat	cta	ttg	gat	atg	gtt	agg	tac	682
Val	Cys	Val	Leu	Phe	Val	Phe	Trp	Asn	Leu	Leu	Asp	Met	Val	Arg	Tyr	
114					119					124					129	
act	tat	agc	atg	tta	tca	gtc	ata	gga	ata	tcc	tat	gct	gtc	ttg	aca	730
Thr	Tyr	Ser	Met	Leu	Ser	Val	Ile	Gly	Ile	Ser	Tyr	Ala	Val	Leu	Thr	
130					135					140					145	
tgg	ctc	agt	caa	aca	cta	tgg	atg	cca	att	tat	cct	ttg	tgt	gtt	ctt	778
Trp	Leu	Ser	Gln	Thr	Leu	Trp	Met	Pro	Ile	Tyr	Pro	Leu	Cys	Val	Leu	
146					151					156					161	
gct	gaa	gca	ttt	gcc	atc	tat	caa	tcg	ctg	cct	tat	ttt	gaa	tca	ttt	826
Ala	Glu	Ala	Phe	Ala	Ile	Tyr	Gln	Ser	Leu	Pro	Tyr	Phe	Glu	Ser	Phe	
162					167					172					177	
ggc	act	tat	tcc	acc	aag	ctg	ccc	ttt	gac	tta	tcc	atc	tat	ttc	cca	874
Gly	Thr	Tyr	Ser	Thr	Lys	Leu	Pro	Phe	Asp	Leu	Ser	Ile	Tyr	Phe	Pro	
178					183					188					193	
tat	gtg	ctg	aaa	ata	tat	ctc	atg	atg	ctc	ttt	ata	ggt	atg	tat	ttt	922
Tyr	Val	Leu	Lys	Ile	Tyr	Leu	Met	Met	Leu	Phe	Ile	Gly	Met	Tyr	Phe	
194					199					204					209	
acc	tac	agt	cat	cta	tac	tca	gaa	aga	aga	gac	atc	ctc	gga	atc	ttt	970
Thr	Tyr	Ser	His	Leu	Tyr	Ser	Glu	Arg	Arg	Asp	Ile	Leu	Gly	Ile	Phe	
210					215					220					225	
ccc	att	aaa	aaa	aag	aag	atg	tga	agtacagcat	tccagtgtga	cacgagaaaa						1024
Pro	Ile	Lys	Lys	Lys	Lys	Met	*									

226

231

gacaggctgt ggattcagtg cagtaaataa aacacaggaa gtattctggt ggaaaaatac 1084  
 cttgtatttg ataaaaatcc attacatgaa ataactgcac atacccccaa aactctagac 1144  
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&lt;211&gt; 1397

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&lt;213&gt; Homo sapiens

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&lt;222&gt; (155)..(1258)

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(1397)

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&lt;400&gt; 509

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gtccgatat ctcacctgtt ctcttattga agac atg gcc gcc gcg tat ttt 172  
 Met Ala Ala Ala Tyr Phe  
 1

cca gac tgc ata gtc aga ccc ttt ggc tcc tca gtc aac act ttt ggg 220  
 Pro Asp Cys Ile Val Arg Pro Phe Gly Ser Ser Val Asn Thr Phe Gly  
 7 12 17 22

aag tta gga tgt gat ttg gac atg ttt ttg gat cta gat gaa acc aga 268  
 Lys Leu Gly Cys Asp Leu Asp Met Phe Leu Asp Leu Asp Glu Thr Arg  
 23 28 33 38

aac ctc agc gct cac aag atc tca gga aat ttt ctg atg gaa ttt caa 316  
 Asn Leu Ser Ala His Lys Ile Ser Gly Asn Phe Leu Met Glu Phe Gln  
 39 44 49 54

gtg aaa aat gtt cct tca gaa aga att gca act cag aag atc ctg tct 364  
 Val Lys Asn Val Pro Ser Glu Arg Ile Ala Thr Gln Lys Ile Leu Ser  
 55 60 65 70

gtg tta gga gag tgc ctt gac cac ttt ggc cct ggc tgt gtg ggt gtg 412

Val	Leu	Gly	Glu	Cys	Leu	Asp	His	Phe	Gly	Pro	Gly	Cys	Val	Gly	Val		
71					76					81					86		
caa	aaa	ata	tta	aat	gcc	cgg	tgt	ccg	ctc	gtg	agg	ttc	tca	cac	cag	460	
Gln	Lys	Ile	Leu	Asn	Ala	Arg	Cys	Pro	Leu	Val	Arg	Phe	Ser	His	Gln		
87					92					97					102		
gcc	tcc	gga	ttt	cag	tgt	gat	ttg	act	acg	aac	aat	agg	att	gcc	ttg	508	
Ala	Ser	Gly	Phe	Gln	Cys	Asp	Leu	Thr	Thr	Asn	Asn	Arg	Ile	Ala	Leu		
103					108					113					118		
aca	agt	tcc	gaa	ctc	ctt	tat	ata	tat	ggg	gcc	cta	gac	tca	aga	gtg	556	
Thr	Ser	Ser	Glu	Leu	Leu	Tyr	Ile	Tyr	Gly	Ala	Leu	Asp	Ser	Arg	Val		
119					124					129					134		
aga	gcc	ttg	gtg	ttc	agt	gta	cgg	tgc	tgg	gct	cga	gca	cat	tca	cta	604	
Arg	Ala	Leu	Val	Phe	Ser	Val	Arg	Cys	Trp	Ala	Arg	Ala	His	Ser	Leu		
135					140					145					150		
aca	agt	agt	att	cct	ggg	gca	tgg	att	aca	aat	ttc	tcc	ctt	aca	atg	652	
Thr	Ser	Ser	Ile	Pro	Gly	Ala	Trp	Ile	Thr	Asn	Phe	Ser	Leu	Thr	Met		
151					156					161					166		
atg	gtc	atc	ttt	ttt	ctc	cag	aga	aga	tca	ccc	cct	att	ctt	cca	aca	700	
Met	Val	Ile	Phe	Phe	Leu	Gln	Arg	Arg	Ser	Pro	Pro	Ile	Leu	Pro	Thr		
167					172					177					182		
cta	gat	tcc	tta	aaa	acc	cta	gca	gat	gca	gaa	gat	aaa	tgt	gta	ata	748	
Leu	Asp	Ser	Leu	Lys	Thr	Leu	Ala	Asp	Ala	Glu	Asp	Lys	Cys	Val	Ile		
183					188					193					198		
gaa	ggc	aac	aac	tgc	aca	ttt	gtt	cgt	gac	ttg	agt	aga	att	aaa	cct	796	
Glu	Gly	Asn	Asn	Cys	Thr	Phe	Val	Arg	Asp	Leu	Ser	Arg	Ile	Lys	Pro		
199					204					209					214		
tca	cag	aac	aca	gaa	aca	tta	gaa	tta	cta	ctg	aag	gaa	ttt	ttt	gag	844	
Ser	Gln	Asn	Thr	Glu	Thr	Leu	Glu	Leu	Leu	Leu	Lys	Glu	Phe	Phe	Glu		
215					220					225					230		
tat	ttt	ggc	aat	ttt	gct	ttc	gat	aaa	aat	tcc	ata	aat	att	cga	cag	892	
Tyr	Phe	Gly	Asn	Phe	Ala	Phe	Asp	Lys	Asn	Ser	Ile	Asn	Ile	Arg	Gln		
231					236					241					246		
gga	agg	gag	caa	aac	aaa	cct	gat	tct	tct	cct	ctg	tac	att	cag	aat	940	
Gly	Arg	Glu	Gln	Asn	Lys	Pro	Asp	Ser	Ser	Pro	Leu	Tyr	Ile	Gln	Asn		
247					252					257					262		
cca	ttt	gaa	act	tct	ctc	aac	ata	agc	aaa	aat	gta	agt	caa	agc	cag	988	
Pro	Phe	Glu	Thr	Ser	Leu	Asn	Ile	Ser	Lys	Asn	Val	Ser	Gln	Ser	Gln		
263					268					273					278		
ctg	caa	aaa	ttt	gta	gat	ttg	gcc	cga	gaa	agt	gcc	tgg	att	tta	caa	1036	
Leu	Gln	Lys	Phe	Val	Asp	Leu	Ala	Arg	Glu	Ser	Ala	Trp	Ile	Leu	Gln		
279					284					289					294		
cag	gaa	gat	aca	gat	cga	cct	tcc	ata	tca	agt	aat	cgg	ccc	tgg	ggg	1084	
Gln	Glu	Asp	Thr	Asp	Arg	Pro	Ser	Ile	Ser	Ser	Asn	Arg	Pro	Trp	Gly		

295	300	305	310	
ctg gta tcc cta ttg cta cca tct gct cca aac aga aag tcc ttt acc				1132
Leu Val Ser Leu Leu Leu Pro Ser Ala Pro Asn Arg Lys Ser Phe Thr				
311	316	321	326	
aag aag aaa agc aat aag ttt gca att gaa aca gtc aaa aac ttg cta				1180
Lys Lys Lys Ser Asn Lys Phe Ala Ile Glu Thr Val Lys Asn Leu Leu				
327	332	337	342	
gaa tct tta aaa ggt aac aga aca gaa aat ttc aca aaa acc agt ggg				1228
Glu Ser Leu Lys Gly Asn Arg Thr Glu Asn Phe Thr Lys Thr Ser Gly				
343	348	353	358	
gaa gag gaa caa tta gta ctc agg aca tga t gggcttgcta cattgtgtta				1279
Glu Glu Glu Gln Leu Val Leu Arg Thr *				
359	364			
aaggaactgg ggctttngcc tattccaaat gggctctgtgg gantttactt nggggaaaaa				1339
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gggagtcaac acaggaaaga ttagagcacg tgggcagagg ctgttgccca ttggtcacat				180
gtggtcagca gagagcaggt gaccagcacc ctggagcttt gcaggaagaa ccagacagcc				240
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cctgctctc tacctgatcc accctcaatc caccagaacc atg ggc tgc tgt ggc				535
/		Met Gly Cys Cys Gly		
		1		
tgc tcc gga ggc tgt ggc tcc ggc tgt ggg ggc tgt ggc tcc agc tgt				583
Cys Ser Gly Gly Cys Gly Ser Gly Cys Gly Gly Cys Gly Ser Ser Cys				

6	11	16	21	
ggg ggt tgt ggc tct ggc tgt ggg ggc tgt ggc tcc ggc cgt ggg ggc				631
Gly Gly Cys Gly Ser Gly Cys Gly Gly Cys Gly Ser Gly Arg Gly Gly				
22	27	32	37	
tgt ggc tct ggc tgt ggg ggc tgc agc tcc agc tgt ggg gga tgt ggc				679
Cys Gly Ser Gly Cys Gly Gly Cys Ser Ser Ser Cys Gly Gly Cys Gly				
38	43	48	53	
tcc aga tgt tat gtg cct gtc tgc tgc tgc aag ccc gtg tgc tcc tgg				727
Ser Arg Cys Tyr Val Pro Val Cys Cys Cys Lys Pro Val Cys Ser Trp				
54	59	64	69	
gtg cca gcc tgt tcc tgc acc agc tgt ggc tcc tgt ggg ggc tcc aag				775
Val Pro Ala Cys Ser Cys Thr Ser Cys Gly Ser Cys Gly Gly Ser Lys				
70	75	80	85	
ggg ggc tgt ggc tcc tgt ggg ggt tcc aag ggg ggc tgt ggt tct tgt				823
Gly Gly Cys Gly Ser Cys Gly Gly Ser Lys Gly Gly Cys Gly Ser Cys				
86	91	96	101	
ggc tgc tcc cag tcc agc tgt tgt aag ccc tgt tgc tgc tcc tca ggc				871
Gly Cys Ser Gln Ser Ser Cys Cys Lys Pro Cys Cys Cys Ser Ser Gly				
102	107	112	117	
tgt gga tca tcc tgc tgc cag tcc agc tgc tgc aag ccc tgc tgc tgc				919
Cys Gly Ser Ser Cys Cys Gln Ser Ser Cys Cys Lys Pro Cys Cys Cys				
118	123	128	133	
cag tcc agc tgc tgt gtc ccc gtg tgc tgc cag tcc agc tgc tgc aag				967
Gln Ser Ser Cys Cys Val Pro Val Cys Cys Gln Ser Ser Cys Cys Lys				
134	139	144	149	
ccc tgt tgc tgc cag tcc aac tgt tgt gtc cct gtg tgc tgc cag tgt				1015
Pro Cys Cys Cys Gln Ser Asn Cys Cys Val Pro Val Cys Cys Gln Cys				
150	155	160	165	
aag atc tga ggctctg gaccagacc ttcaggtttc tctgttttgg tgaaagcatt				1071
Lys Ile *				
166				
tcttatgggt cctgagtc gttcgtccca cacatcctcc ctgaggcacc tgcacctgct				1131
ctagctcacc atccatgcac acacctcctt ccatggctca gctctcctct gggccctgcc				1191
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tgctgtttct cctgtggccc aagtgtgacc aggaaggtct ctttcttcc tgttgtctcc				1491
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1562

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ctgaaaagcgg caagtagcgc accatattat gtagttagtc atcataaggc accaggncctt 180  
acactatggc tcnggctcgt atgtgtgtgg aatgtgagcg gatacanttc acacagnaan 240  
cagtaatgac atgattacga ttttatacac tcactatagg ggaatntggc cctcgaggcc 300  
aagaattcng gcacgagggg cagcttcctt gcggaagtgg tgaccgtgag agaagaag 358  
atg gcg gcc cct gta gtg gcg ccg cct ggt gtg gtg gtt agt cgg gct 406  
Met Ala Ala Pro Val Val Ala Pro Pro Gly Val Val Val Ser Arg Ala  
1 5 10 15  
aac aag cgc agc ggc gcg ggg ccg gga ggc agc ggt ggc ggg gga gcc 454  
Asn Lys Arg Ser Gly Ala Gly Pro Gly Gly Ser Gly Gly Gly Gly Ala  
17 22 27 32  
aga ggg gcg gag gag gaa ccg ccg ccg ccc cta caa gca gtt ctg gtg 502  
Arg Gly Ala Glu Glu Glu Pro Pro Pro Pro Leu Gln Ala Val Leu Val  
33 38 43 48  
gcc gat agc ttc gat cgc cgc ttc ttc ccc atc tcc aag gac cag cct 550  
Ala Asp Ser Phe Asp Arg Arg Phe Phe Pro Ile Ser Lys Asp Gln Pro  
49 54 59 64  
cgg gtc ctc ttg ccc ctg gcc aat gtg gca tta att gac tac act ctg 598  
Arg Val Leu Leu Pro Leu Ala Asn Val Ala Leu Ile Asp Tyr Thr Leu  
65 70 75 80  
gaa ttc ctg act gcc aca ggt gta cag gaa aca ttt gtc ttt tgt tgc 646  
Glu Phe Leu Thr Ala Thr Gly Val Gln Glu Thr Phe Val Phe Cys Cys  
81 86 91 96  
tgg aaa gct gct caa atc aaa gaa cat tta ctg aag tca aag tgg tgc 694

Trp	Lys	Ala	Ala	Gln	Ile	Lys	Glu	His	Leu	Leu	Lys	Ser	Lys	Trp	Cys	
97					102					107					112	
cgc	cct	aca	tct	ctc	aat	gtg	gtt	cga	ata	att	aca	tca	gag	ctc	tat	742
Arg	Pro	Thr	Ser	Leu	Asn	Val	Val	Arg	Ile	Ile	Thr	Ser	Glu	Leu	Tyr	
113					118					123					128	
cga	tca	ctg	gga	gat	gtc	ctc	cgt	gat	gtt	gat	gcc	aag	gct	ttg	gtg	790
Arg	Ser	Leu	Gly	Asp	Val	Leu	Arg	Asp	Val	Asp	Ala	Lys	Ala	Leu	Val	
129					134					139					144	
cgc	tct	gac	ttt	ctt	ctg	gtg	tat	ggg	gat	gtc	atc	tca	aac	atc	aat	838
Arg	Ser	Asp	Phe	Leu	Leu	Val	Tyr	Gly	Asp	Val	Ile	Ser	Asn	Ile	Asn	
145					150					155					160	
atc	acc	aga	gcc	ctt	gag	gaa	cac	agg	ttg	aga	cgg	aag	cta	gaa	aaa	886
Ile	Thr	Arg	Ala	Leu	Glu	Glu	His	Arg	Leu	Arg	Arg	Lys	Leu	Glu	Lys	
161					166					171					176	
aat	gtt	tct	gtg	atg	acg	atg	atc	ttc	aag	gag	tca	tcc	ccc	agc	cac	934
Asn	Val	Ser	Val	Met	Thr	Met	Ile	Phe	Lys	Glu	Ser	Ser	Pro	Ser	His	
177					182					187					192	
cca	act	cgt	tgc	cac	gaa	gac	aat	gtg	gta	gtg	gct	gtg	gat	agt	acc	982
Pro	Thr	Arg	Cys	His	Glu	Asp	Asn	Val	Val	Val	Ala	Val	Asp	Ser	Thr	
193					198					203					208	
aca	aac	agg	gtt	ctc	cat	ttt	cag	aag	acc	cag	ggg	ctc	cgg	cgt	ttt	1030
Thr	Asn	Arg	Val	Leu	His	Phe	Gln	Lys	Thr	Gln	Gly	Leu	Arg	Arg	Phe	
209					214					219					224	
gca	ttt	cct	ctg	agc	ctg	ttt	cag	ggc	agt	agt	gat	gga	gtg	gag	gtt	1078
Ala	Phe	Pro	Leu	Ser	Leu	Phe	Gln	Gly	Ser	Ser	Asp	Gly	Val	Glu	Val	
225					230					235					240	
cga	tat	gat	tta	ctg	gat	tgt	cat	atc	agc	atc	tgt	tct	cct	cag	gtg	1126
Arg	Tyr	Asp	Leu	Leu	Asp	Cys	His	Ile	Ser	Ile	Cys	Ser	Pro	Gln	Val	
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Ala	Gln	Leu	Phe	Thr	Asp	Asn	Phe	Asp	Tyr	Gln	Thr	Arg	Asp	Asp	Phe	
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gtg	cga	ggg	ctc	tta	gtg	aat	gag	gag	atc	cta	ggg	aac	cag	atc	cac	1222
Val	Arg	Gly	Leu	Leu	Val	Asn	Glu	Glu	Ile	Leu	Gly	Asn	Gln	Ile	His	
273					278					283					288	
atg	cac	gta	aca	gct	aag	gaa	tat	ggg	gcc	cgt	gtc	tcc	aac	cta	cac	1270
Met	His	Val	Thr	Ala	Lys	Glu	Tyr	Gly	Ala	Arg	Val	Ser	Asn	Leu	His	
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His Ser Arg His Asn Ile Tyr Arg Gly Pro Glu Val Ser Leu Gly His							
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Gly Ser Ile Leu Glu Glu Asn Val Leu Leu Gly Ser Gly Thr Val Ile							
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Gly Ser Asn Cys Phe Ile Thr Asn Ser Val Ile Gly Pro Gly Cys His							
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att gag cca ggt gat aac gtg gtg ctg gac cag acc tac ctg tgg cag							1558
Ile Glu Pro Gly Asp Asn Val Val Leu Asp Gln Thr Tyr Leu Trp Gln							
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Gly Val Arg Val Ala Ala Gly Ala Gln Ile His Gln Ser Leu Leu Cys							
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Asp Asn Ala Glu Val Lys Glu Arg Val Thr Leu Lys Pro Arg Ser Val							
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Leu Thr Ser Gln Val Val Val Gly Pro Asn Ile Thr Leu Pro Glu Gly							
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Ser Val Ile Ser Leu His Pro Pro Asp Ala Glu Glu Asp Glu Asp Asp							
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Gly Glu Phe Ser Asp Asp Ser Gly Ala Asp Gln Glu Lys Asp Lys Val							
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Lys Met Lys Gly Tyr Asn Pro Ala Glu Val Gly Ala Ala Gly Lys Gly							
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Tyr Leu Trp Lys Ala Ala Gly Met Asn Met Glu Glu Glu Glu Glu Leu							
497		502		507		512	
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Gln Gln Asn Leu Trp Gly Leu Lys Ile Asn Met Glu Glu Glu Ser Glu							
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agt gaa agt gag caa agt atg gat tct gag gag ccg gac agc cgg gga							1990
Ser Glu Ser Glu Gln Ser Met Asp Ser Glu Glu Pro Asp Ser Arg Gly							
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Lys Ile Gly Val Gly Ile Thr Gly Phe Gly Ile Phe Phe Ile Leu Phe
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gga aca ctc ctg tac ttt gat tcc gtg ctc ctg gcc ttt gga aac ctg      207
Gly Thr Leu Leu Tyr Phe Asp Ser Val Leu Leu Ala Phe Gly Asn Leu
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tgg ttc ttc ttc caa cgg cac aaa ctc aag gga acc agc ttc ctc ctg      303
Trp Phe Phe Phe Gln Arg His Lys Leu Lys Gly Thr Ser Phe Leu Leu
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ggg ggt gtg gtt atc gtg ctc cta cgc tgg ccc ctc ctc ggc atg ttc      351
Gly Gly Val Val Ile Val Leu Leu Arg Trp Pro Leu Leu Gly Met Phe
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ctg gaa acc tac gga ttc ttc agc ctc ttt aag ggc ttt ttc cct gtc      399
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 89           94           99          104

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Ala Phe Gly Phe Leu Gly Asn Val Cys Asn Ile Pro Phe Leu Gly Ala
105           110           115           120

ctg ttc cgg aga ctt caa ggc act agc tcg atg gtc tga aaaacagaga      496
Leu Phe Arg Arg Leu Gln Gly Thr Ser Ser Met Val *
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ctcagtccttc tgcactgact cactcccga catatccgga cctcccgaag tccagaagga      616
aggaatggag ctgagcaact gacgtcaaat cccaagtcg actcaagagg ctgccaggaa      676

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gcagagatgc agaccccaag gagactgggc tggggctggt atcacaccct cactctatat 736

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cgctgaggaa gtcagcgtcg gagacggagg cctgcccctc agagacgcgc cccctagtgg 240

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27 32 37 42

ctt gta gcc ctt cga gga aat caa aac cag aga att ggt gaa aat cag 434  
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43 48 53 58

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59 64 69 74

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75 80 85 90

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Val Ile Asp Leu Gly Ser Gly Lys Gly Tyr Leu Ser Ser Phe Leu Ser  
91 96 101 106

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Leu Lys Tyr Gly Leu \*  
107 112

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Met Glu Pro Lys Ala Ser  
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Cys Pro Ala Ala Ala Pro Leu Met Glu Arg Lys Phe His Val Leu Val  
7 12 17 22

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23 28 33 38

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39 44 49 54

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Arg Ala Lys His Phe Tyr Ser Pro Gln Asp Ile Pro Val Thr Leu Tyr  
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Ser Asp Ala Asp Glu Trp Glu Met Trp Lys Ser Arg Ser Asp Pro Val  
71 76 81 86

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Leu His Ile Asp Leu Arg Arg Trp Ala Asp Leu Leu Leu Val Ala Pro  
87 92 97 102

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Phe Cys Pro Ala Met Asn Thr Ala Met Trp Glu His Pro Ile Thr Ala  
135 140 145 150

cag cag gta gac cag ctc aag gcc ttt ggc tat gtc gag atc ccc tgt 654  
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Val Ala Lys Lys Leu Val Cys Gly Asp Glu Gly Leu Gly Ala Met Ala  
167 172 177 182

gaa gtg ggg acc atc gtg gac aaa gtg aaa gaa gtc ctc ttc cag cac 750  
Glu Val Gly Thr Ile Val Asp Lys Val Lys Glu Val Leu Phe Gln His  
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 Ser Gly Phe Gln Gln Ser \*  
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Leu Leu Glu Glu Asp Asn Lys Phe Cys Ala Asp Cys Gln Ser Lys Gly	
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Pro Arg Trp Ala Ser Trp Asn Ile Gly Val Phe Ile Cys Ile Arg Cys	
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Val Asn Leu Asp Gln Trp Thr Gln Glu Gln Ile Gln Cys Met Gln Glu	
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Thr Phe Arg Arg Pro Gln Ile Asp Pro Ala Val Glu Gly Phe Ile Arg	
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Ala Phe Arg Lys Glu Lys Asp Asp Lys Trp Lys Arg Gly Ser Glu Pro	
132 137 142 147	
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Val Pro Glu Lys Lys Leu Glu Pro Val Val Phe Glu Lys Val Lys Met	
148 153 158 163	
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Pro Gln Lys Lys Glu Asp Pro Gln Leu Pro Arg Lys Ser Ser Pro Lys	
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Cys Ser Ile Ala Asn Ser Lys Thr Ser Asn Thr Leu Glu Lys Asp Leu	
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Ala Tyr Pro Thr Ala Tyr Pro Ser Phe Pro Gly Val Thr Pro Pro Asn	
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 Pro Gln Val His Arg Asp Ala Phe Arg Lys Leu Arg Leu Leu Arg Ser  
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Tyr Met Phe Ser Leu Ile Ser Gly Ser *				
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Lys Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro				
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aag gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag				630
Lys Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu				
183	188	193	198	
gca tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc				678
Ala Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala				
199	204	209	214	
aaa aag gag cga aca aaa att gag ttt gtg acg ggc acc aaa aaa ggc				726
Lys Lys Glu Arg Thr Lys Ile Glu Phe Val Thr Gly Thr Lys Lys Gly				
215	220	225	230	
acc acg acc aac gcc acg tcc acc acc act acc act gcc agc aca gct				774
Thr Thr Thr Asn Ala Thr Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala				
231	236	241	246	
gtt gca gat gct cag aag aga aag agc aag tgg gat tcg gct atc cca				822
Val Ala Asp Ala Gln Lys Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro				
247	252	257	262	
gtg aca acg ata gcc cag ccc acc atc ctc acc acc aca gcc acc ctg				870
Val Thr Thr Ile Ala Gln Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu				
263	268	273	278	
cca gct gtt gtc acg gtc acc acc agc gcc agc ggc tcc aag acc acc				918
Pro Ala Val Val Thr Val Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr				
279	284	289	294	
gtc atc tct gct gtg ggc acc att gtg aag aag gcc aag cag tga cct				966
Val Ile Ser Ala Val Gly Thr Ile Val Lys Lys Ala Lys Gln *				
295	300	305		

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gagggggccac cctaggactt gaaaggaccg tgcagcccag tgaccactgc ccagtgggag 1026
gcgccacttt gtatatttca ggactgggac ctactcccca gatgccacct gagaggagct 1086
tctgtttggc attccagatg gaaggacagg cagcacggga gccaggcgct gtggacaggg 1146
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gcatctcaga tgcactggcc tctcctgcat tctgtttgca ggcaaagtgc tcagctcaca 1266
tgtcccccaa gactcaatag tcttggttgg gactattgcc tcagggttga caacaggggtg 1326
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at 1388

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                                         1

gtt ctg tcg tct ctc gca gtt tac gcg gaa gat tca gag ccc gag tct 102
Val Leu Ser Ser Leu Ala Val Tyr Ala Glu Asp Ser Glu Pro Glu Ser
 7                12                17                22

gat ggc gag gct gga atc gag gcg gtg ggc agc gcg gct gag gag aaa 150
Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys
23                28                33                38

ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta 198
Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu
39                44                49                54

ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga 246
Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Glu Asp Glu Asn Ser Arg
55                60                65                70

cag tcg aga cgg tgt ttc act atg ttt ccc agt ctg gtt tca aac ttc 294
Gln Ser Arg Arg Cys Phe Thr Met Phe Pro Ser Leu Val Ser Asn Phe
71                76                81                86

tgg cct caa gca att ccc ctg cct cac cct ccc aaa gtg ctg gga tta/ 342
Trp Pro Gln Ala Ile Pro Leu Pro His Pro Pro Lys Val Leu Gly Leu
87                92                97                102

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cag gaa gat gac gat tca gag act gaa aaa cct gag gct gat gac cca Gln Glu Asp Asp Asp Ser Glu Thr Glu Lys Pro Glu Ala Asp Asp Pro 103 108 113 118	390
aag gat aat aca gaa gca gaa aag cga gac ccc cag gaa ctc gtg gcc Lys Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val Ala 119 124 129 134	438
tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag atc Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys Ile 135 140 145 150	486
ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg <sup>3</sup> caa gac aag atc Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys Ile 151 156 161 166	534
cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac tac Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn Tyr 167 172 177 182	582
att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag aag Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu Lys 183 188 193 198	630
ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca aag Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro Lys 199 204 209 214	678
gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag gca Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu Ala 215 220 225 230	726
tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc aaa Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala Lys 231 236 241 246	774
aag gag cga aca aaa gct tgt tgc agg gac gtg tct gca gcg cct ggg Lys Glu Arg Thr Lys Ala Cys Cys Arg Asp Val Ser Ala Ala Pro Gly 247 252 257 262	822
gaa ccg agc tgt cct tcc cct gtg cgg gcg ggc acc gcc tcc tcc tgg Glu Pro Ser Cys Pro Ser Pro Val Arg Ala Gly Thr Ala Ser Ser Trp 263 268 273 278	870
att gag ttt gtg acg ggc acc aaa aaa ggc acc acg acc aac gcc aca Ile Glu Phe Val Thr Gly Thr Lys Lys Gly Thr Thr Thr Asn Ala Thr 279 284 289 294	918
tcc acc acc act acc act gcc agc aaa gct gtt gca gat gct cag aag Ser Thr Thr Thr Thr Thr Ala Ser Lys Ala Val Ala Asp Ala Gln Lys 295 300 305 310	966
aga aag agc aag tgg gat tcg gct atc cca gtg aca acg ata gcc cag Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro Val Thr Thr Ile Ala Gln 311 316 321 326	1014

ccc acc atc ctc acc acc aca gcc acc ctg cca gct gtt gtc acg gtc 1062  
Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu Pro Ala Val Val Thr Val  
327 332 337 342

acc acc agc gcc agc ggc tcc aag acc acc gtc atc tct gct gtg ggc 1110  
Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr Val Ile Ser Ala Val Gly  
343 348 353 358

acc att gtg aag aag gcc aag cag tga cctga gggggccaccc taggacttga 1162  
Thr Ile Val Lys Lys Ala Lys Gln \*  
359 364

aaggaccgtg cagcccagt accactgccc agtgggaggc gccactttgt atatttcagg 1222

actgggacct actccccaga tgccacctga gaggagcttc tgtttggcat tccagatgga 1282

aggacaggca gcacgggagc caggcgctgt ggacagggtc tgtccacgca ccacctgggg 1342

tctgccgcct attaaaagt ccgatattctt acctcttggc atctcagatg cactggcctc 1402

tcctgcattc tgtttgcagg caaatgcttc agctcacatg tcccccaaga ctcaatagtc 1462

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Val Leu Ser Ser Leu Ala Val Tyr Ala Glu Asp Ser Glu Pro Glu Ser  
7 12 17 22

gat ggc gag gct gga atc gag gcg gtg ggc agc gcg gct gag gag aaa 150  
Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys  
23 28 33 38

ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta 198  
Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu  
39 44 49 54

ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga 246  
Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Glu Asp Glu Asn Ser Arg

55	60	65	70	
cag tcg gat aat aca gaa gca gaa aag cga gac ccc cag gaa ctc gtg				294
Gln Ser Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val				
71	76	81	86	
gcc tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag				342
Ala Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys				
87	92	97	102	
atc ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg caa gac aag				390
Ile Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys				
103	108	113	118	
atc cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac				438
Ile Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn				
119	124	129	134	
tac att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag				486
Tyr Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu				
135	140	145	150	
aag ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca				534
Lys Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro				
151	156	161	166	
aag gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag				582
Lys Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu				
167	172	177	182	
gca tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc				630
Ala Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala				
183	188	193	198	
aaa aag gag cga aca aaa att gag ttt gtg acg ggc acc aaa aaa ggc				678
Lys Lys Glu Arg Thr Lys Ile Glu Phe Val Thr Gly Thr Lys Lys Gly				
199	204	209	214	
acc acg acc aac gcc acg tcc acc acc act acc act gcc agc aca gct				726
Thr Thr Thr Asn Ala Thr Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala				
215	220	225	230	
gtt gca gat gct cag aag aga aag agc aag tgg gat tcg gct atc cca				774
Val Ala Asp Ala Gln Lys Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro				
231	236	241	246	
gtg aca acg ata gcc cag ccc acc atc ctc acc acc aca gcc acc ctg				822
Val Thr Thr Ile Ala Gln Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu				
247	252	257	262	
cca gct gtt gtc acg gtc acc acc agc gcc agc ggc tcc aag acc acc				870
Pro Ala Val Val Thr Val Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr				
263	268	273	278	
gtc atc tct gct gtg ggc acc att gtg aag aag gcc aag cag tga cct				918
Val Ile Ser Ala Val Gly Thr Ile Val Lys Lys Ala Lys Gln *				
279	284	289		

gaggggcccac cctaggactt gaaaggaccg tgcagcccag tgaccactgc ccagtgggag 978  
 gcgccacttt gtatatattca ggactggggac ctactcccca gatgccacct gagaggagct 1038  
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 tgtcccccaa gactcaatag tcttggttgg gactattgcc tcagggttga caacagggtg 1278  
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 Met  
 1  
 ccc aag ttt tat tgt gac tac tgc gat aca tac ctc acc cat gac tct 164  
 Pro Lys Phe Tyr Cys Asp Tyr Cys Asp Thr Tyr Leu Thr His Asp Ser  
 2 7 12 17  
 cca tct gtg aga aag aca cac tgc agt gga agg aaa cac aaa gag aat 212  
 Pro Ser Val Arg Lys Thr His Cys Ser Gly Arg Lys His Lys Glu Asn  
 18 23 28 33  
 gtg aaa gac tat tat cag aaa tgg atg gaa gag cag gct cag agc ctg 260  
 Val Lys Asp Tyr Tyr Gln Lys Trp Met Glu Glu Gln Ala Gln Ser Leu  
 34 39 44 49  
 att gac aaa aca acg gct gca ttt caa caa gga aag ata cct cct act 308  
 Ile Asp Lys Thr Thr Ala Ala Phe Gln Gln Gly Lys Ile Pro Pro Thr  
 50 55 60 65  
 cca ttc tct gct cct cct cct gca ggg gcg atg ata cca cct ccc ccc 356  
 Pro Phe Ser Ala Pro Pro Pro Ala Gly Ala Met Ile Pro Pro Pro Pro  
 66 71 76 81  
 agc ctt ccg ggt cct cct cgc cct ggt atg atg cca gca ccc cat atg 404

Ser	Leu	Pro	Gly	Pro	Pro	Arg	Pro	Gly	Met	Met	Pro	Ala	Pro	His	Met	
82					87					92					97	
ggg	ggc	cct	ccc	atg	atg	cca	atg	atg	ggc	cct	cct	cct	cct	ggg	atg	452
Gly	Gly	Pro	Pro	Met	Met	Pro	Met	Met	Gly	Pro	Pro	Pro	Pro	Gly	Met	
98					103				108					113		
atg	cca	gtg	gga	cct	gct	cct	gga	atg	agg	ccg	ccc	atg	gga	ggc	cat	500
Met	Pro	Val	Gly	Pro	Ala	Pro	Gly	Met	Arg	Pro	Pro	Met	Gly	Gly	His	
114					119				124					129		
atg	cca	atg	atg	cct	ggg	ccc	cca	atg	atg	aga	cct	cct	gcc	cgt	ccc	548
Met	Pro	Met	Met	Pro	Gly	Pro	Pro	Met	Met	Arg	Pro	Pro	Ala	Arg	Pro	
130					135				140					145		
atg	atg	gtg	ccc	act	cgg	ccc	gga	atg	act	cga	cca	gac	aga	taa	gga	596
Met	Met	Val	Pro	Thr	Arg	Pro	Gly	Met	Thr	Arg	Pro	Asp	Arg	*		
146					151				156							
tagaggggag	gccttattgt	atcggtttta	tatttatatt	ctgcttcacc	aggagatcat											656
gctgctgtga	tactgagttt	tctaaacagc	ataaggaaga	cttgctcccc	tgtcctatga											716
aagagaatag	ttttggaggg	gagaagtggg	acaaaaaaga	tgcagttttc	ctttgtattg											776
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gctgctc	atg ggg ctg atg gtg tct gag cta aaa gac cat ttt ttg aga															289
	Met Gly Leu Met Val Ser Glu Leu Lys Asp His Phe Leu Arg															
	1				5										10	
cac cta cag ggt gta gaa aag aag aaa att gaa cag atg gtt ctg gac																337
His Leu Gln Gly Val Glu Lys Lys Lys Ile Glu Gln Met Val Leu Asp																
15				20					25						30	
tac att tca aaa ctg ctg gat ctc att tgc cac atc gta gaa acc aat																385



Tyr Ile Ser Lys Leu Leu Asp Leu Ile Cys His Ile Val Glu Thr Asn	
31 36 41 46	
tgg agg aaa cat aat ctt cat tcc tgg gtt ctc cac ttc aat agt cgt	433
Trp Arg Lys His Asn Leu His Ser Trp Val Leu His Phe Asn Ser Arg	
47 52 57 62	
ggc agt gct gct gaa ttt gca gtt ttt cac atc atg acc agg att ctg	481
Gly Ser Ala Ala Glu Phe Ala Val Phe His Ile Met Thr Arg Ile Leu	
63 68 73 78	
gaa gct aca aac agt ttg ttt tta cct ctg cct cct ggt ttt cat act	529
Glu Ala Thr Asn Ser Leu Phe Leu Pro Leu Pro Pro Gly Phe His Thr	
79 84 89 94	
ctg cac acc atc ctc ggg gtc cag tgt ctc cct ttg cat aac ctg ctg	577
Leu His Thr Ile Leu Gly Val Gln Cys Leu Pro Leu His Asn Leu Leu	
95 100 105 110	
cat tgc att gac agt gga gtg ttg ctt ctc act gaa aca gct gtc ata	625
His Cys Ile Asp Ser Gly Val Leu Leu Leu Thr Glu Thr Ala Val Ile	
111 116 121 126	
agg ctc atg aaa gat ctg gat aat aca gag aaa aat gaa aaa ctg aaa	673
Arg Leu Met Lys Asp Leu Asp Asn Thr Glu Lys Asn Glu Lys Leu Lys	
127 132 137 142	
ttc agt atc att gtg cgg ctt cct ccg ctt att ggg cag aag att tgt	721
Phe Ser Ile Ile Val Arg Leu Pro Pro Leu Ile Gly Gln Lys Ile Cys	
143 148 153 158	
aga ctt tgg gat cat cct atg agt tct aac atc att tcg cgg aac cac	769
Arg Leu Trp Asp His Pro Met Ser Ser Asn Ile Ile Ser Arg Asn His	
159 164 169 174	
gtg acg cga ctg ctt cag aac tat aag aaa cag cct cgg aat tct atg	817
Val Thr Arg Leu Leu Gln Asn Tyr Lys Lys Gln Pro Arg Asn Ser Met	
175 180 185 190	
att aac aag tca tcg ttc agt gta gaa ttt ctg cct ctg aac tac ttc	865
Ile Asn Lys Ser Ser Phe Ser Val Glu Phe Leu Pro Leu Asn Tyr Phe	
191 196 201 206	
att gaa att ctg aca gat ata gag tcc tcc aat caa gcc ctg tat cct	913
Ile Glu Ile Leu Thr Asp Ile Glu Ser Ser Asn Gln Ala Leu Tyr Pro	
207 212 217 222	
ttt gaa gga cat gac aat gtg gat gca gaa ttt gta gag gaa gca gct	961
Phe Glu Gly His Asp Asn Val Asp Ala Glu Phe Val Glu Glu Ala Ala	
223 228 233 238	
ctg aaa cac acc gcg atg ctt tta ggc tta tga aaaagaaa acgcaattgg	1012
Leu Lys His Thr Ala Met Leu Leu Gly Leu *	
239 244 249	
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atatttataaa ttggtatacaa aaatagtttta gccataattg tttagccatg tgagtttcag 1132
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aatcaagtgt agagaaatga taaatggcct aagaaggcat acagtggcat aaacgatgct 1252
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cgg gca gac ccg gag gga acg gag gaa gcg gtc atg tct cgc tac acg 95
Arg Ala Asp Pro Glu Gly Thr Glu Glu Ala Val Met Ser Arg Tyr Thr
 16              21              26              31

agg ccc ccc aac acc tcc ctg ttc atc agg aac gtc gcg gac gcc acc 143
Arg Pro Pro Asn Thr Ser Leu Phe Ile Arg Asn Val Ala Asp Ala Thr
 32              37              42              47

agg cct gag gac ttg cgc cgt gag ttt ggt cga tat ggc cct ata gta 191
Arg Pro Glu Asp Leu Arg Arg Glu Phe Gly Arg Tyr Gly Pro Ile Val
 48              53              58              63

gac gtt tac att cca ctt gac ttc tac act cgc cgc cca aga gga ttt 239
Asp Val Tyr Ile Pro Leu Asp Phe Tyr Thr Arg Arg Pro Arg Gly Phe
 64              69              74              79

gct tat gtt caa ttt gaa gat gtt cga gat gct gaa gat gct ctt tat 287
Ala Tyr Val Gln Phe Glu Asp Val Arg Asp Ala Glu Asp Ala Leu Tyr
 80              85              90              95

aac ctc aat aga aag tgg gta tgt ggc cgt cag att gaa ata cag ttt 335
Asn Leu Asn Arg Lys Trp Val Cys Gly Arg Gln Ile Glu Ile Gln Phe

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96	101	106	111	
gca caa ggt gat cgc	aaa aca cca ggc	caa atg aaa tca	aaa gaa cgt	383
Ala Gln Gly Asp Arg	Lys Thr Pro Gly	Gln Met Lys Ser	Lys Glu Arg	
112	117	122	127	
cat cct tgt tct cca	agt gat cac agg	aga tca aga agc	ccc agc caa	431
His Pro Cys Ser Pro	Ser Asp His Arg	Arg Ser Arg Ser	Pro Ser Gln	
128	133	138	143	
aga aga act cga agt	aga agt tct tca	tgg gga aga aat	agg agg cgg	479
Arg Arg Thr Arg Ser	Arg Ser Ser Ser	Trp Gly Arg Asn	Arg Arg Arg	
144	149	154	159	
tca gac agc ctt aaa	gag tct cga cac	agg cga ttt tct	tat agc cag	527
Ser Asp Ser Leu Lys	Glu Ser Arg His	Arg Arg Phe Ser	Tyr Ser Gln	
160	165	170	175	
tct aaa tct cgt tcc	aaa tca tta cca	agg cgg tct acc	tca gca agg	575
Ser Lys Ser Arg Ser	Lys Ser Leu Pro	Arg Arg Ser Thr	Ser Ala Arg	
176	181	186	191	
cag tca aga act cca	aga agg aat ttt	ggc tct aga gga	cgg tca agg	623
Gln Ser Arg Thr Pro	Arg Arg Asn Phe	Gly Ser Arg Gly	Arg Ser Arg	
192	197	202	207	
tcc aag tcc tta caa	aag agg tcc aag	tca ata gga aaa	tca cag tca	671
Ser Lys Ser Leu Gln	Lys Arg Ser Lys	Ser Ile Gly Lys	Ser Gln Ser	
208	213	218	223	
agt tca cct caa aag	cag act agc tca	gga aca aaa tca	aga tca cat	719
Ser Ser Pro Gln Lys	Gln Thr Ser Ser	Gly Thr Lys Ser	Arg Ser His	
224	229	234	239	
gga aga cat tct gac	tca ata gca aga	tcc ccg tgt aaa	tct ccc aaa	767
Gly Arg His Ser Asp	Ser Ile Ala Arg	Ser Pro Cys Lys	Ser Pro Lys	
240	245	250	255	
ggg tat acc aat tct	gaa act aaa gta	caa aca gca aag	cat tct cat	815
Gly Tyr Thr Asn Ser	Glu Thr Lys Val	Gln Thr Ala Lys	His Ser His	
256	261	266	271	
ttt cgg tca cat tcc	aga tct cga agt	tat cgt cat aaa	aac agt tgg	863
Phe Arg Ser His Ser	Arg Ser Arg Ser	Tyr Arg His Lys	Asn Ser Trp	
272	277	282	287	
tga acag caacagaaag	agcaccacgc cgtctt	taat ataagttatt	aaactctcat	920
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288				
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<212> DNA  
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<220>  
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<222> (263) .. (1960)

<400> 525

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tcgccggcgcc cccgagcccg ctctggccgc tggatgatct gaagctgccc tctctccttc      180
atttatatca ccagcttgct ttttgctgag aaagcttcct gccctggaag atggcaccct      240
tccccatcca gacaccttgg ga atg aat tat gag gga gcc agg agt gag aga      292
                    Met Asn Tyr Glu Gly Ala Arg Ser Glu Arg
                    1                      5

gag aac cac gct gct gat gac tcc gag gga ggg gcc ctg gac atg tgc      340
Glu Asn His Ala Ala Asp Asp Ser Glu Gly Gly Ala Leu Asp Met Cys
11                      16                      21                      26

tgc agt gag agg cta ccg ggt ctc ccc cag ccg ata gtg atg gag gca      388
Cys Ser Glu Arg Leu Pro Gly Leu Pro Gln Pro Ile Val Met Glu Ala
27                      32                      37                      42

ctg gac gag gct gaa ggg ctc cag gac tca cag aga gag atg ccg cca      436
Leu Asp Glu Ala Glu Gly Leu Gln Asp Ser Gln Arg Glu Met Pro Pro
43                      48                      53                      58

ccc cct cct ccc tcg ccg ccc tca gat cca gct cag aag cca cca cct      484
Pro Pro Pro Pro Ser Pro Pro Ser Asp Pro Ala Gln Lys Pro Pro Pro
59                      64                      69                      74

cga ggc gct ggg agc cac tcc ctc act gtc agg agc agc ctg tgc ctg      532
Arg Gly Ala Gly Ser His Ser Leu Thr Val Arg Ser Ser Leu Cys Leu
75                      80                      85                      90

ttc gct gcc tca cag ttc ctg ctt gcc tgt ggg gtg ctc tgg ttc agc      580
Phe Ala Ala Ser Gln Phe Leu Leu Ala Cys Gly Val Leu Trp Phe Ser
91                      96                      101                      106

ggt tat ggc cac atc tgg tca cag aac gcc aca aac ctc gtc tcc tct      628
Gly Tyr Gly His Ile Trp Ser Gln Asn Ala Thr Asn Leu Val Ser Ser
107                      112                      117                      122

ttg ctg acg ctc ctg aaa cag ctg gaa ccc acg gcc tgg ctt gac tct      676
Leu Leu Thr Leu Leu Lys Gln Leu Glu Pro Thr Ala Trp Leu Asp Ser
123                      128                      133                      138

ggg acg tgg gga gtc ccc agt ctg ctg ctg gtc ttt ctg tcc gtg ggc      724
Gly Thr Trp Gly Val Pro Ser Leu Leu Leu Val Phe Leu Ser Val Gly
139                      144                      149                      154

ctg gtc ctc gtt acc acc ctg gtg tgg cac ctc ctg agg aca ccc cca      772

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Leu Val Leu Val Thr Thr Leu Val Trp His Leu Leu Arg Thr Pro Pro	
155 160 165 170	
gag cca ccc acc cca ctg ccc cct gag gac agg cgc cag tca gtg agc	820
Glu Pro Pro Thr Pro Leu Pro Pro Glu Asp Arg Arg Gln Ser Val Ser	
171 176 181 186	
cgc cag ccc tcc ttc acc tac tca gag tgg atg gag gag aag atc gag	868
Arg Gln Pro Ser Phe Thr Tyr Ser Glu Trp Met Glu Glu Lys Ile Glu	
187 192 197 202	
gat gac ttc ctg gac ctc gac ccg gtg ccc gag act cct gtg ttt gat	916
Asp Asp Phe Leu Asp Leu Asp Pro Val Pro Glu Thr Pro Val Phe Asp	
203 208 213 218	
tgt gtg atg gac atc aag cct gag gct gac ccc acc tca ctc acc gtc	964
Cys Val Met Asp Ile Lys Pro Glu Ala Asp Pro Thr Ser Leu Thr Val	
219 224 229 234	
aag tcc atg ggt ctg cag gag agg agg ggt tcc aat gtc tcc ctg acc	1012
Lys Ser Met Gly Leu Gln Glu Arg Arg Gly Ser Asn Val Ser Leu Thr	
235 240 245 250	
ctg gac atg tgc act ccg ggc tgc aac gag gag ggc ttt ggc tat ctc	1060
Leu Asp Met Cys Thr Pro Gly Cys Asn Glu Glu Gly Phe Gly Tyr Leu	
251 256 261 266	
atg tcc cca cgt gag gag tcc gcc cgc gag tac ctg ctc agc gcc tcc	1108
Met Ser Pro Arg Glu Glu Ser Ala Arg Glu Tyr Leu Leu Ser Ala Ser	
267 272 277 282	
cgt gtc ctc caa gca gaa gag ctt cat gaa aag gcc ctg gac cct ttc	1156
Arg Val Leu Gln Ala Glu Glu Leu His Glu Lys Ala Leu Asp Pro Phe	
283 288 293 298	
ctg ctg cag gcg gaa ttc ttt gaa atc ccc atg aac ttt gtg gat ccg	1204
Leu Leu Gln Ala Glu Phe Phe Glu Ile Pro Met Asn Phe Val Asp Pro	
299 304 309 314	
aaa gag tac gac atc cct ggg ctg gtg cgg aag aac cgg tac aaa acc	1252
Lys Glu Tyr Asp Ile Pro Gly Leu Val Arg Lys Asn Arg Tyr Lys Thr	
315 320 325 330	
ata ctt ccc aac cct cac agc aga gtg tgt ctg acc tca cca gac cct	1300
Ile Leu Pro Asn Pro His Ser Arg Val Cys Leu Thr Ser Pro Asp Pro	
331 336 341 346	
gac gac cct ctg agt tcc tac atc aat gcc aac tac atc cgg ggc tat	1348
Asp Asp Pro Leu Ser Ser Tyr Ile Asn Ala Asn Tyr Ile Arg Gly Tyr	
347 352 357 362	
ggg ggg gag gag aag gtg tac atc gcc act cag gga ccc atc gtc agc	1396
Gly Gly Glu Glu Lys Val Tyr Ile Ala Thr Gln Gly Pro Ile Val Ser	
363 368 373 378	
acg gtc gcc gac ttc tgg cgc atg gtg tgg cag gag cac acg ccc atc	1444
Thr Val Ala Asp Phe Trp Arg Met Val Trp Gln Glu His Thr Pro Ile	

379	384	389	394	
att gtc atg atc acc aac atc gag gag atg aac gag aaa tgc acc gag				1492
Ile Val Met Ile Thr Asn Ile Glu Glu Met Asn Glu Lys Cys Thr Glu				
395	400	405	410	
tat tgg ccg gag gag cag gtg gcg tac gac ggt gtt gag atc act gtg				1540
Tyr Trp Pro Glu Glu Gln Val Ala Tyr Asp Gly Val Glu Ile Thr Val				
411	416	421	426	
cag aaa gtc att cac acg gag gat tac cgg ctg cga ctc atc tcc ctc				1588
Gln Lys Val Ile His Thr Glu Asp Tyr Arg Leu Arg Leu Ile Ser Leu				
427	432	437	442	
aag agt ggg act gag gag cga ggc ctg aag cat tac tgg ttc aca tcc				1636
Lys Ser Gly Thr Glu Glu Arg Gly Leu Lys His Tyr Trp Phe Thr Ser				
443	448	453	458	
tgg ccc gac cag aag acc cca gac cgg gcc ccc cca ctc ctg cac ctg				1684
Trp Pro Asp Gln Lys Thr Pro Asp Arg Ala Pro Pro Leu Leu His Leu				
459	464	469	474	
gtg cgg gag gtg gag gag gca gcc cag cag gag ggg ccc cac tgt gcc				1732
Val Arg Glu Val Glu Glu Ala Ala Gln Gln Glu Gly Pro His Cys Ala				
475	480	485	490	
ccc atc atc gtc cac tgc agt gca ggg att ggg agg acc ggc tgc ttc				1780
Pro Ile Ile Val His Cys Ser Ala Gly Ile Gly Arg Thr Gly Cys Phe				
491	496	501	506	
att gcc acc agc atc tgc tgc cag cag ctg cgg cag gag ggt gta gtg				1828
Ile Ala Thr Ser Ile Cys Cys Gln Gln Leu Arg Gln Glu Gly Val Val				
507	512	517	522	
gac atc ctg aag acc acg tgc cag ctc cgt cag gac agg ggc ggc atg				1876
Asp Ile Leu Lys Thr Thr Cys Gln Leu Arg Gln Asp Arg Gly Gly Met				
523	528	533	538	
atc cag cac tgc gag cag tac cag ttt gtg cac cac gtc atg agc ctc				1924
Ile Gln His Cys Glu Gln Tyr Gln Phe Val His His Val Met Ser Leu				
539	544	549	554	
tac gaa aag cag ctg tcc cac cag tcc cca gaa tga ctgc gcttctccta				1974
Tyr Glu Lys Gln Leu Ser His Gln Ser Pro Glu *				
555	560	565		
caagggtctc tgggcactgc ccagcctgag tctcggccct caccagggc cctgcctcgg				2034
gtcctggggc tgctccccgc ttctccctt tcagtcagct ccctctgtcc tctgtcagcc				2094
tggcctgacc cctaccctcc agcattgctc ttctactgtg acatattggg gagtgggggg				2154
cagggctcggg aaggacatg ccaggccagg cgtggggccc cggggcctga cccacaccac				2214
gcagaccccg ggctccagtt tttaacgatg gttccatcaa tacctgatcc agaattgttc				2274
cgtgctacac tttgtgtcct gctgcaatgt gttctgtctg tccatccatc tctgccctct				2334

gtaccggaca ctgtgtctcc tcagccagga aggggtaatg agctccagcc cctaagcaac 2394  
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 ggcattggga gctccagaag gtcaccagag agctttcagc tgaggagag ttctctaggt 2514  
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 agcctgtgag gcactggca 2593

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 <213> Homo sapiens

<220>  
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 <222> (215)..(1372)

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 ccggcatccc cgccgcctct gcgcccgcgc cgcccccccg gcgccccctc cccagcgcgc 180  
 ccccggcgc tcctccgcgc cgcgctcgtc ggcc atg gcc cgg gag aac ggc 232  
 Met Ala Arg Glu Asn Gly  
 1  
 gag agc agc tcc tcc tgg aaa aag caa gct gaa gac atc aag aag atc 280  
 Glu Ser Ser Ser Ser Trp Lys Lys Gln Ala Glu Asp Ile Lys Lys Ile  
 7 12 17 22  
 ttc gag ttc aaa gag acc ctc gga acc ggg gcc ttt tcc gaa gtg gtt 328  
 Phe Glu Phe Lys Glu Thr Leu Gly Thr Gly Ala Phe Ser Glu Val Val  
 23 28 33 38  
 tta gct gaa gag aag gca act ggc aag ctc ttt gct gtg aag tgt atc 376  
 Leu Ala Glu Glu Lys Ala Thr Gly Lys Leu Phe Ala Val Lys Cys Ile  
 39 44 49 54  
 cct aag aag gcg ctg aag ggc aag gaa agc agc ata gag aat gag ata 424  
 Pro Lys Lys Ala Leu Lys Gly Lys Glu Ser Ser Ile Glu Asn Glu Ile  
 55 60 65 70  
 gcc gtc ctg aga aag att aag cat gaa aat att gtt gcc ctg gaa gac 472  
 Ala Val Leu Arg Lys Ile Lys His Glu Asn Ile Val Ala Leu Glu Asp  
 71 76 81 86  
 att tat gaa agc cca aat cac ctg tac ttg gtc atg cag ctg gtg tcc 520  
 Ile Tyr Glu Ser Pro Asn His Leu Tyr Leu Val Met Gln Leu Val Ser  
 87 92 97 102

ggt gga gag ctg ttt gac cgg ata gtg gag aag ggg ttt tat aca gag	568
Gly Gly Glu Leu Phe Asp Arg Ile Val Glu Lys Gly Phe Tyr Thr Glu	
103 108 113 118	
aag gat gcc agc act ctg atc cgc caa gtc ttg gac gcc gtg tac tat	616
Lys Asp Ala Ser Thr Leu Ile Arg Gln Val Leu Asp Ala Val Tyr Tyr	
119 124 129 134	
ctc cac aga atg ggc atc gtc cac aga gac ctc aag ccc gaa aat ctc	664
Leu His Arg Met Gly Ile Val His Arg Asp Leu Lys Pro Glu Asn Leu	
135 140 145 150	
ttg tac tac agt caa gat gag gag tcc aaa ata atg atc agt gac ttt	712
Leu Tyr Tyr Ser Gln Asp Glu Glu Ser Lys Ile Met Ile Ser Asp Phe	
151 156 161 166	
gga ttg tca aaa atg gag ggc aaa gga gat gtg atg tcc act gcc tgt	760
Gly Leu Ser Lys Met Glu Gly Lys Gly Asp Val Met Ser Thr Ala Cys	
167 172 177 182	
gga act cca ggc tat gtc gct cct gaa gtc ctc gcc cag aaa cct tac	808
Gly Thr Pro Gly Tyr Val Ala Pro Glu Val Leu Ala Gln Lys Pro Tyr	
183 188 193 198	
agc aaa gcc gtt gac tgc tgg tcc atc gga gtg att gcc tac atc ttg	856
Ser Lys Ala Val Asp Cys Trp Ser Ile Gly Val Ile Ala Tyr Ile Leu	
199 204 209 214	
ctc tgc ggc tac cct cct ttt tat gat gaa aat gac tcc aag ctc ttt	904
Leu Cys Gly Tyr Pro Pro Phe Tyr Asp Glu Asn Asp Ser Lys Leu Phe	
215 220 225 230	
gag cag atc ctc aag gcg gaa tat gag ttt gac tct ccc tac tgg gat	952
Glu Gln Ile Leu Lys Ala Glu Tyr Glu Phe Asp Ser Pro Tyr Trp Asp	
231 236 241 246	
gac atc tcc gac tct gca aaa gac ttc att cgg aac ctg atg gag aag	1000
Asp Ile Ser Asp Ser Ala Lys Asp Phe Ile Arg Asn Leu Met Glu Lys	
247 252 257 262	
gac ccg aat aaa aga tac acg tgt gag cag gca gct cgg cac cca tgg	1048
Asp Pro Asn Lys Arg Tyr Thr Cys Glu Gln Ala Ala Arg His Pro Trp	
263 268 273 278	
atc gct ggt gac aca gcc ctc aac aaa aac atc cac gag tcc gtc agc	1096
Ile Ala Gly Asp Thr Ala Leu Asn Lys Asn Ile His Glu Ser Val Ser	
279 284 289 294	
gcc cag atc cgg aaa aac ttt gcc aag agc aaa tgg aga caa gca ttt	1144
Ala Gln Ile Arg Lys Asn Phe Ala Lys Ser Lys Trp Arg Gln Ala Phe	
295 300 305 310	
aat gcc acg gcc gtc gtg aga cat atg aga aaa cta cac ctc ggc agc	1192
Asn Ala Thr Ala Val Val Arg His Met Arg Lys Leu His Leu Gly Ser	
311 316 321 326	



agc ctg gac agt tca aat gca agt gtt tcg agc agc ctc agt ttg gcc	1240
Ser Leu Asp Ser Ser Asn Ala Ser Val Ser Ser Ser Leu Ser Leu Ala	
327 332 337 342	
agc caa aaa gac tgt ctg gca cct tcc acg ctc tgt agt ttc att tct	1288
Ser Gln Lys Asp Cys Leu Ala Pro Ser Thr Leu Cys Ser Phe Ile Ser	
343 348 353 358	
tct tcg tcg ggg gtc tca gga gtt gga gcc gag cgg aga ccc agg ccc	1336
Ser Ser Ser Gly Val Ser Gly Val Gly Ala Glu Arg Arg Pro Arg Pro	
359 364 369 374	
acc act gtg acg gca gtg cac tct gga agc aag tga ctgg ccctggaggt	1386
Thr Thr Val Thr Ala Val His Ser Gly Ser Lys * <sub>1</sub>	
375 380 385	
ggggccccggg gtcggggctg gggaagggga gccccagggt cgccagagcc gcgagccact	1446
ccagcgagac cccaccttgc atggtgcccc ttctgcata ggactggaag accgaagttt	1506
ttttatggcc atattttcta ctgcaattct gaagtgttca tttctcacia actgtactga	1566
ctcgaggggc gctgatttca taggatctgg tgctgtatat acgaatcttg caaagctcta	1626
actgaacgga ccttcttatt cctctccct aacaccatcg tttccactct tctcagtga	1686
ggtaaccgtc tatggtgtgt tttttcatta atgacaaaaa aaaaaaa	1733

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 <213> Homo sapiens

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 <222> (109)..(639)

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ccccgggtga agccccacct ctgctgcgcg cacgctgcgg tgcgggtc atg gcg cgg	117
Met Ala Arg	
1	
cta ccg aag ctg gca gtc ttt gat ttg gat tac act ctc tgg cct ttc	165
Leu Pro Lys Leu Ala Val Phe Asp Leu Asp Tyr Thr Leu Trp Pro Phe	
4 9 14 19	
tgg gtc gac acg cac gta gac cct ccg ttc cat aag agc agt gat gga	213
Trp Val Asp Thr His Val Asp Pro Pro Phe His Lys Ser Ser Asp Gly	
20 25 30 35	
act gta cga gat agg cgg ggc caa gac gtc cga ctg tac cca gag gtg	261
Thr Val Arg Asp Arg Arg Gly Gln Asp Val Arg Leu Tyr Pro Glu Val	

36	41	46	51	
cct gag gtc cta aaa cga ttg cag agc ctt ggg gtg ccc ggt gcg gct				309
Pro Glu Val Leu Lys Arg Leu Gln Ser Leu Gly Val Pro Gly Ala Ala				
52	57	62	67	
gct tca agg aca agt gag ata gaa ggg gcc aac cag cta ctg gag ctc				357
Ala Ser Arg Thr Ser Glu Ile Glu Gly Ala Asn Gln Leu Leu Glu Leu				
68	73	78	83	
ttt gac ctc ttc agg tac ttt gtt cat cgg gaa atc tat cca ggc agc				405
Phe Asp Leu Phe Arg Tyr Phe Val His Arg Glu Ile Tyr Pro Gly Ser				
84	89	94	99	
aag atc aca cac ttt gag agg ttg cag cag aag act gga att cct ttc				453
Lys Ile Thr His Phe Glu Arg Leu Gln Gln Lys Thr Gly Ile Pro Phe				
100	105	110	115	
tcc cag atg atc ttc ttt gat gat gag agg cgg aat att gta gac gtc				501
Ser Gln Met Ile Phe Phe Asp Asp Glu Arg Arg Asn Ile Val Asp Val				
116	121	126	131	
agc aaa ctg ggt gtt acc tgc att cac atc cag aat gga atg aat ctt				549
Ser Lys Leu Gly Val Thr Cys Ile His Ile Gln Asn Gly Met Asn Leu				
132	137	142	147	
caa act cta agt caa ggg tta gag aca ttt gcg aag gcc caa act ggg				597
Gln Thr Leu Ser Gln Gly Leu Glu Thr Phe Ala Lys Ala Gln Thr Gly				
148	153	158	163	
cct ttg agg tcc agc ctt gag gag agc cca ttt gag gcc taa actgaaa				646
Pro Leu Arg Ser Ser Leu Glu Glu Ser Pro Phe Glu Ala *				
164	169	174		
ggaaatcaag aaggcatttt caggtgcatt tgtaatttat taaagttcat ctgtgtgtga				706
cagaagagat tttaaaaaaa aaaaa				731

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 <222> (107) .. (505)

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atg agg agg	
Met Arg Arg	
1	

tcg ctg aga gct ggg aag agg cgg cag aca gcg ggg aaa tcc aaa tct	163
Ser Leu Arg Ala Gly Lys Arg Arg Gln Thr Ala Gly Lys Ser Lys Ser	
4 9 14 19	
cct ccc aaa gtg ccc att gtg att cag gac gat agc ctt ccc gcg ggg	211
Pro Pro Lys Val Pro Ile Val Ile Gln Asp Asp Ser Leu Pro Ala Gly	
20 25 30 35	
ccc cct cca cag atc cgc atc ctc aag agg ccc acc agc aac ggt gtg	259
Pro Pro Pro Gln Ile Arg Ile Leu Lys Arg Pro Thr Ser Asn Gly Val	
36 41 46 51	
gtc agc agc ccc aac tcc acc agc agg ccc acc ctt cca gtc aag tcc	307
Val Ser Ser Pro Asn Ser Thr Ser Arg Pro Thr Leu Pro Val Lys Ser	
52 57 62 67	
cta gca cag cga gag gcc gag tac gcc gag gcc cgg aag cgg atc ctg	355
Leu Ala Gln Arg Glu Ala Glu Tyr Ala Glu Ala Arg Lys Arg Ile Leu	
68 73 78 83	
ggc agc gcc agc ccc gag gag gag cag gag aaa ccc atc ctc gac agg	403
Gly Ser Ala Ser Pro Glu Glu Glu Gln Glu Lys Pro Ile Leu Asp Arg	
84 89 94 99	
cca acc agg atc tcc caa ccc gaa gac agc agg cag ccc aat aat gtg	451
Pro Thr Arg Ile Ser Gln Pro Glu Asp Ser Arg Gln Pro Asn Asn Val	
100 105 110 115	
atc aga cag cct ttg ggt cct gat ggg tct caa ggc ttc aaa cag cgc	499
Ile Arg Gln Pro Leu Gly Pro Asp Gly Ser Gln Gly Phe Lys Gln Arg	
116 121 126 131	
aga taa atgcaggcaa gaaaagatgc cgccgttgct gccgtcaccg cctcctgggt	555
Arg *	
132	
cgctccgccac gggttgcact gccgtggcag acagctggac ttgagcagag ggaacgacct	615
gacttacttg cactgtgatc ccccttgctc cgcccactgt gaccttgaac cccatgcact	675
gtgacctccc ccccttctccc ccttcccact gtgattggca catcgacaag ggctgtccca	735
agtcaatgga aagggaaagg gtgggggtta ggggaagggtt ggggggaccc agcaaggact	795
cagagagtca gacagtgcc cttggccact tggggtaaag ccagtgccag caataacagt	855
ttatcatgct cattaatttg ggatttcaaa acacaaatga aaactcacac ccaccacccc	915
ccaagtgcac gtctccatca cttaaaaagt aagttccatt tgaaaatata ctttcttttt	975
tttttcttcc tatttttggt tgtttatata aatatctgat ttgcaagaaa aagtgcattg	1035
gaggggtttt agtggtttta tgaattttta attaagaaag ggtagtttgg tagtctactt	1095
aaaaatgttt ctgggaaatt cactagaaac attaaccaat aggattttgg tgagcttagc	1155
ttctgtattc ctactgccgc ccagaaaagg ggcagggttc tgcagccgcc aggacagacg	1215

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agcaccat gcctatacct cctccccga gctaagtc agggcatctg ggccttgcc 1275
ggagactggg ctagctctgt aggctcggag agcctgggga gggtgccaac cccacctcta 1335
gtattttggg agatagggaa agtgaaccga cttccccctt ccatacccct cagggtgggt 1395
ccctaccagc caggcttact acttctagaa gaaagcagag tgccaggag tgagattgca 1455
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aaaaccagga gagagtctgc ctccaggact ctgagccttc tgccctcgat gttcagaagg 1575
tggataggtc ttcccactcc agcatggctt gaactcttag gggctctgcag tgctccatct 1635
ccattgggtg cccagctca gtaactatac ctggtacatt tcctgtgtgc aatcagtacc 1695
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<210> 529
<211> 612
<212> DNA
<213> Homo sapiens

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<220>
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<222> (118)..(486)

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aaaaaaagag atctctcgag gatccgaatt cgcgcccgcg tcgaccgcgg ccgcaag 117
atg gcg ccg cag aaa gac agg aag ccc aag agg tca acc tgg agg ttt 165
Met Ala Pro Gln Lys Asp Arg Lys Pro Lys Arg Ser Thr Trp Arg Phe
1 5 10 15

aat ttg gac ctt act cat cca gta gaa gat gga att ttt gat tct gga 213
Asn Leu Asp Leu Thr His Pro Val Glu Asp Gly Ile Phe Asp Ser Gly
17 22 27 32

aat ttt gag caa ttt cta cgg gag aag gtt aaa gtc aat ggc aaa act 261
Asn Phe Glu Gln Phe Leu Arg Glu Lys Val Lys Val Asn Gly Lys Thr
33 38 43 48

gga aat ctc ggg aat gtt gtt cac att gaa cgc ttc aag aat aaa atc 309
Gly Asn Leu Gly Asn Val Val His Ile Glu Arg Phe Lys Asn Lys Ile
49 54 59 64

aca gtt gtt tct gag aaa cag ttc tct aaa agg tat ttg aaa tac ctt 357
Thr Val Val Ser Glu Lys Gln Phe Ser Lys Arg Tyr Leu Lys Tyr Leu
65 70 75 80
/

acc aag aaa tac ctt aag aag aac aat ctt cgt gat tgg ctt cga gtg 405
Thr Lys Lys Tyr Leu Lys Lys Asn Asn Leu Arg Asp Trp Leu Arg Val

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81	86	91	96	
gtt gca tct gac aag gag acc tac gaa ctt cgt tac ttc cag att agt				453
Val Ala Ser Asp Lys Glu Thr Tyr Glu Leu Arg Tyr Phe Gln Ile Ser				
97	102	107	112	
caa gat gaa gat gaa tca gag tcg gag gac tag gcaaaggc tccccttaca				504
Gln Asp Glu Asp Glu Ser Glu Ser Glu Asp *				
113	118	123		
gggctttgct tattaataaaa ataaatgaag tatacatgag aaataccaag aaattggctt				564
ttagtttatc agtgaataaaa aaatattata ctcttgaaaa aaaaaaaaa				612

<210> 530  
 <211> 4586  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> CDS  
 <222> (586) .. (2556)

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gtcattttact gttgtcacac aatattgcgt tgctgaattt tccactgatt atattcattt	180
tatttctctc cagaacttgg tttcttggtt ttctgctcac tgtccacacc cactccaccc	240
caaggctgga ataattctct tggagcaaaa aaatcatctt tttctttgta tttcattgaa	300
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Ile Leu Gly Val Ile Asp Lys Lys Leu Arg Asn Leu Glu Lys Lys Lys	
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Gly Lys Leu Asp Asp Tyr Gln Glu Arg Met Asn Lys Gly Glu Arg Leu	
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Gln Asp Ile Gln Lys Thr Ile Lys Lys Thr Ala Arg Arg Glu Gln Leu	
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Met Arg Glu Glu Ala Glu Gln Lys Arg Leu Lys Thr Val Leu Glu Leu	
84 89 94 99	
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Gln Tyr Val Leu Asp Lys Leu Gly Asp Asp Glu Val Arg Thr Asp Leu	
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Thr His Asn His Gln Asn Gly Leu Cys Glu Glu Glu Glu Ala Ala Ser	
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Gln Gln Pro Gln Ala	Ala Ser Pro Ser Val	Pro Glu Pro His Ser Leu		
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act cca gtg gct cag	gca gat ccc ctt gtg	aga aga cag cga gta caa	1506	
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Asp Leu Met Ala Gln	Met Gln Gly Pro Tyr	Asn Phe Ile Gln Asp Ser		
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Gln Pro Met Asn Pro	Thr Gln Asn Met Asp	Met Pro Gln Leu Val Cys		
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Gln Pro Gln Val Phe	Gln Ala Gly Thr Ser	Lys Pro Leu His Ser Ser		
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Gly Ile Asn Val Asn	Ala Ala Pro Phe Gln	Ser Met Gln Thr Val Phe		
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Tyr Gln Arg Asp Gly Tyr Gln Gln Asn Phe Lys Arg Gly Ser Gly Gln				
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Pro Val Asp Met Pro Cys Gly His Asp Phe Cys Arg Gly Cys Trp Glu		
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Ser Phe Leu Asn Leu Lys Ile Gln Glu Gly Glu Ala His Asn Ile Phe		
26 31 36 41		
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Cys Pro Ala Tyr Asp Cys Phe Gln Leu Val Pro Gly Asp Ile Ile Lys		
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Ser Val Val Ser Lys Glu Met Asp Lys Arg Tyr Leu Gln Phe Asp Ile		
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aag gcc ttt gtt gaa aat aat cct gcc att aaa tgg tgt cct act cca		291
Lys Ala Phe Val Glu Asn Asn Pro Ala Ile Lys Trp Cys Pro Thr Pro		
74 79 84 89		
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Gly Cys Asp Arg Ala Val Arg Leu Thr Lys Gln Gly Ser Asn Thr Ser		
90 95 100 105		
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Gly Ser Asp Thr Leu Ser Phe Pro Leu Leu Arg Ala Pro Ala Val Asp		
106 111 116 121		
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Cys Gly Lys Gly His Leu Phe Cys Trp Glu Cys Leu Gly Glu Ala His		
122 127 132 137		
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Glu Pro Cys Asp Cys Gln Thr Trp Lys Asn Trp Leu Gln Lys Ile Thr		
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Ala Ala Asn Cys Leu Trp Leu Leu Thr Asn Ser Lys Pro Cys Ala Asn		
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Cys Lys Ser Pro Ile Gln Lys Asn Glu Gly Cys Asn His Met Gln Cys	
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Lys His Ser Ser Ser Thr Gly Gly Tyr Tyr Arg Cys Thr Arg Tyr Glu	
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Lys Glu Thr Glu Gly Gly Cys Pro Asp Thr Thr Phe Ile Glu Asp Ala	
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Pro Gly Thr Ser Val Val Ser Ser Ala Ser Met Ser Val Leu His Ser	
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Ser Ser Leu Arg Asp Tyr Thr Pro Ala Ser Arg Ser Glu Asn Gln Asp	
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Ser Leu Gln Ala Leu Ser Ser Leu Asp Glu Asp Asp Pro Asn Ile Leu	
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Pro Cys Ile Lys Asp Gly Ser Glu Gly Val Lys Asp Val Glu Met Val				
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Leu Pro Glu Asp Ser Met Phe Glu Asp Ala Ser Val Ser Glu Gly Arg				
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Gly Thr Gln Ile Glu Glu Asn Pro Leu Glu Glu Asn Ile Leu Ala Gly				
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Arg Leu Gln Glu Pro Lys Lys Asp Leu Ile Ala Arg Val Val Arg Ile	
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Ile Gly Asn Lys Lys Ala Ile Glu Leu Leu Met Glu Thr Ala Glu Val	
253 258 263 268	
gaa caa aat ggt ggt ctc ttt ata atg aat ggt agt cga aga aga aca	1225
Glu Gln Asn Gly Gly Leu Phe Ile Met Asn Gly Ser Arg Arg Arg Thr	
269 274 279 284	
cca ggt gga gtt ttt ctg aat ctc ttg aaa aac act cct agt atc agc	1273
Pro Gly Gly Val Phe Leu Asn Leu Leu Lys Asn Thr Pro Ser Ile Ser	
285 290 295 300	
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Glu Glu Gln Ile Lys Asp Ile Phe Tyr Ile Glu Asn Gln Lys Glu Tyr	
301 306 311 316	
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Glu Asn Lys Lys Ala Ala Arg Lys Arg Arg Thr Gln Val Leu Gly Lys	
317 322 327 332	
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Lys Met Lys Gln Ala Ile Lys Ser Leu Asn Phe Gln Glu Asp Asp Asp	
333 338 343 348	
aca tca cga gaa act ttt gca agt gac acg aat gag gcc ttg gcc tct	1465
Thr Ser Arg Glu Thr Phe Ala Ser Asp Thr Asn Glu Ala Leu Ala Ser	
349 354 359 364	
ctt gat gag tca cag gaa gga cat gca gaa gcc aag ttg gag gca gag	1513
Leu Asp Glu Ser Gln Glu Gly His Ala Glu Ala Lys Leu Glu Ala Glu	
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gaa gcc att gaa gtt gat cat tct cat gat ttg gac atc ttt taa gta	1561
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 Met  
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 Gly Ser Val Leu Gly Leu Cys Ser Met Ala Ser Trp Ile Pro Cys Leu  
 2 7 12 17  
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 Cys Gly Ser Ala Pro Cys Leu Leu Cys Arg Cys Cys Pro Ser Gly Asn  
 18 23 28 33  
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 Asn Ser Thr Val Thr Arg Leu Ile Tyr Ala Leu Phe Leu Leu Val Gly  
 34 39 44 49  
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 Val Cys Val Ala Cys Val Met Leu Ile Pro Gly Met Glu Glu Gln Leu  
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 Asn Lys Ile Pro Gly Phe Cys Glu Asn Glu Lys Gly Val Val Pro Cys  
 66 71 76 81  
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 Ala Met Phe Tyr Leu Leu Leu Ser Leu Leu Met Ile Lys Val Lys Ser  
 98 103 108 113  
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 114 / 119 124 129  
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Phe Ala Ala Ala Ile Ala Ile Ile Ile Gly Ala Phe Phe Ile Pro Glu	
130 135 140 145	
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Gly Thr Phe Thr Thr Val Trp Phe Tyr Val Gly Met Ala Gly Ala Phe	
146 151 156 161	
tgt ttc atc ctc ata caa cta gtc tta ctt att gat ttt gca cat tca	646
Cys Phe Ile Leu Ile Gln Leu Val Leu Leu Ile Asp Phe Ala His Ser	
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Trp Asn Glu Ser Trp Val Glu Lys Met Glu Glu Gly Asn Ser Arg Cys	
178 183 188 193	
tgg tat gca gcc ttg tta tca gct aca gct ctg aat tat ctg ctg tct	742
Trp Tyr Ala Ala Leu Leu Ser Ala Thr Ala Leu Asn Tyr Leu Leu Ser	
194 199 204 209	
tta gtt gct atc gtc ctg ttc ttt gtc tac tac act cat cca gcc agt	790
Leu Val Ala Ile Val Leu Phe Phe Val Tyr Tyr Thr His Pro Ala Ser	
210 215 220 225	
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Cys Ser Glu Asn Lys Ala Phe Ile Ser Val Asn Met Leu Leu Cys Val	
226 231 236 241	
ggg gct tct gta atg tct ata ctg cca aaa atc caa gaa tca caa cca	886
Gly Ala Ser Val Met Ser Ile Leu Pro Lys Ile Gln Glu Ser Gln Pro	
242 247 252 257	
aga tct ggt ttg tta cag tct tca gta att aca gtc tac aca atg tat	934
Arg Ser Gly Leu Leu Gln Ser Ser Val Ile Thr Val Tyr Thr Met Tyr	
258 263 268 273	
ttg aca tgg tca gct atg acc aat gaa cca gaa aca aat tgc aac cca	982
Leu Thr Trp Ser Ala Met Thr Asn Glu Pro Glu Thr Asn Cys Asn Pro	
274 279 284 289	
agt cta cta agc ata att ggc tac aat aca aca agc act gtc cca aag	1030
Ser Leu Leu Ser Ile Ile Gly Tyr Asn Thr Thr Ser Thr Val Pro Lys	
290 295 300 305	
gaa ggg cag tca gtc cag tgg tgg cat gct caa gga att ata gga cta	1078
Glu Gly Gln Ser Val Gln Trp Trp His Ala Gln Gly Ile Ile Gly Leu	
306 311 316 321	
att ctc ttt ttg ttg tgt gta ttt tat tcc agc atc cgt act tca aac	1126
Ile Leu Phe Leu Leu Cys Val Phe Tyr Ser Ser Ile Arg Thr Ser Asn	
322 327 332 337	
aat agt cag gtt aat aaa ctg act cta aca agt gat gaa tct aca tta	1174
Asn Ser Gln Val Asn Lys Leu Thr Leu Thr Ser Asp Glu Ser Thr Leu	
338 343 348 353	
ata gaa gat ggt gga gct aga agt gat gga tca ctg gag gat ggg gac	1222
Ile Glu Asp Gly Gly Ala Arg Ser Asp Gly Ser Leu Glu Asp Gly Asp	

354	359	364	369	
gat gtt cac cga gct	gta gat aat gaa agg	gat ggt gtc act tac agt		1270
Asp Val His Arg Ala	Val Asp Asn Glu Arg	Asp Gly Val Thr Tyr Ser		
370	375	380	385	
tat tcc ttc ttt cac	ttc atg ctt ttc ctg	gct tca ctt tat atc atg		1318
Tyr Ser Phe Phe His	Phe Met Leu Phe Leu	Ala Ser Leu Tyr Ile Met		
386	391	396	401	
atg acc ctt acc aac	tgg tac agg tat gaa	ccc tct cgt gag atg aaa		1366
Met Thr Leu Thr Asn	Trp Tyr Arg Tyr Glu	Pro Ser Arg Glu Met Lys		
402	407	412	417	
agt cag tgg aca gct	gtc tgg gtg aaa atc	tct tcc agt tgg att ggc		1414
Ser Gln Trp Thr Ala	Val Trp Val Lys Ile	Ser Ser Ser Trp Ile Gly		
418	423	428	433	
atc gtg ctg tat gtt	tgg aca ctc gtg gca	cca ctt gtt ctt aca aat		1462
Ile Val Leu Tyr Val	Trp Thr Leu Val Ala	Pro Leu Val Leu Thr Asn		
434	439	444	449	
cgt gat ttt gac tga	gtgagacttc tagcatgaaa	gtcccacttt gattattgct		1517
Arg Asp Phe Asp *				
450				
tatttgaaaa cagtattccc	aacttttgta aagttgtgta	tgtttttgct tcccatgtaa		1577
cttctccagt gttctggcat	gaattagatt ttactgcttg	tcattttggt attttcttac		1637
caagtgcatt gatatgtgaa	gtagaatgaa ttgcagagga	aagttttatg aatatggtga		1697
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agcattaaag caaatgtatg	gctgcctttt gaaatatttg	atgtgttgcc tggcaggata		1877
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aggattgctt gagcccagga	ggcagaggtt gcagtgagcc	aaggtcacgt cactgcactc		2477

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attttgacag ggaaggaagt aactgcaaaa cactaggctt tagtaggtac ttatataaaa	2597
tctagtccag ttctcttcat ttaaaaaaat gaagacacga agtacagact taaatagctc	2657
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 <212> DNA  
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gga gca gca gcg gcg gag gcg gcg gag acg gcg gaa gca gtc tcc ccg	96
Gly Ala Ala Ala Ala Glu Ala Ala Glu Thr Ala Glu Ala Val Ser Pro	
17 22 27 32	

act ccg atc ccc aca gtc acc gcc ccg tcc ccg agg gcg ggc gga ggg	144
Thr Pro Ile Pro Thr Val Thr Ala Pro Ser Pro Arg Ala Gly Gly Gly	
33 38 43 48	

gtc ggc ggc agc gac ggc agc gac ggt agt ggc ggc agg ggc gac agt	192
Val Gly Gly Ser Asp Gly Ser Asp Gly Ser Gly Gly Arg Gly Asp Ser	
49 54 59 64	

ggc gcg tat gac ggc agc ggt gcg tgc ggc ggc agc gac gcg tgc gat	240
Gly Ala Tyr Asp Gly Ser Gly Ala Cys Gly Gly Ser Asp Ala Cys Asp	
65 70 75 80	

ggc agc ggc gac agc agc ggc gac agc tgg act aaa cag gtc act tgt	288
Gly Ser Gly Asp Ser Ser Gly Asp Ser Trp Thr Lys Gln Val Thr Cys	
81 86 91 96	

aga tat ttt aag tat ggg att tgt aag gaa gga gat aac tgt cgc tac	336
Arg Tyr Phe Lys Tyr Gly Ile Cys Lys Glu Gly Asp Asn Cys Arg Tyr	
97 102 107 112	

tcg cat gac ctc tct gac cgt ctg tgt ggt gta gtg tgc aag tat ttt	384
Ser His Asp Leu Ser Asp Arg Leu Cys Gly Val Val Cys Lys Tyr Phe	
113 118 / 123 128	

cag cga ggg tac tgt att tat gga gac cgc tgc aga tgt gaa cat agc	432
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353	358	363	368	
tgc cgg atc aca tct	aac ttt gtc att cca	agt gag tac tgg gtg gag		1152
Cys Arg Ile Thr Ser	Asn Phe Val Ile Pro	Ser Glu Tyr Trp Val Glu		
369	374	379	384	
gag aaa gaa gag aag	cag aaa ctc att ctg	aaa tac aag gag gca atg		1200
Glu Lys Glu Glu Lys	Gln Lys Leu Ile Leu	Lys Tyr Lys Glu Ala Met		
385	390	395	400	
agc aac aag gcg tgc	agg tat ttt gat gaa	gga cgt ggg agc tgc cca		1248
Ser Asn Lys Ala Cys	Arg Tyr Phe Asp Glu	Gly Arg Gly Ser Cys Pro		
401	406	411	416	
ttt gga ggg aac tgt	ttt tac aag cat gcg	tac cct gat ggc cgt aga		1296
Phe Gly Gly Asn Cys	Phe Tyr Lys His Ala	Tyr Pro Asp Gly Arg Arg		
417	422	427	432	
gag gag cca cag aga	cag aaa gtg gga aca	tca agc aga tac cgg gcc		1344
Glu Glu Pro Gln Arg	Gln Lys Val Gly Thr	Ser Ser Arg Tyr Arg Ala		
433	438	443	448	
caa cga agg aac cac	ttc tgg gaa ctc att	gag gaa aga gag aac agc		1392
Gln Arg Arg Asn His	Phe Trp Glu Leu Ile	Glu Glu Arg Glu Asn Ser		
449	454	459	464	
aac ccc ttt gac aac	gat gaa gaa gag gtt	gtc acc ttt gag ctg ggc		1440
Asn Pro Phe Asp Asn	Asp Glu Glu Glu Val	Val Thr Phe Glu Leu Gly		
465	470	475	480	
gag atg ttg ctt atg	ctt ttg gct gca ggt	ggg gac gac gaa cta aca		1488
Glu Met Leu Leu Met	Leu Leu Ala Ala Gly	Gly Asp Asp Glu Leu Thr		
481	486	491	496	
gac tct gaa gat gag	tgg gac ttg ttt cat	gat gag ctg gaa gat ttt		1536
Asp Ser Glu Asp Glu	Trp Asp Leu Phe His	Asp Glu Leu Glu Asp Phe		
497	502	507	512	
tat gac ttg gat cta	tag caacct tgcgtggcgt	gtgaactggc ctgctgacct		1590
Tyr Asp Leu Asp Leu	*			
513	518			
cagacagcag ctgtccctg	tggtgggtgtg gcagtgcctg	tgttctctcc taggcaggcc		1650
tctcaactcc aggtgctgtc	ctaagaatctt ttaccagg	cctgtcttct caaccctca		1710
cctttccctg aggagtgtgt	tggtttccct gttgaaaaaa	gttacaaaaa taaatcttaa		1770
agttagtttt ttgtaacacg	aatttaactg tcagacagtt	agtgtaggtg tgttgogtca		1830
tctgttttca accagattgc	atttatggac ttttcacaca	ctcattttga ggacccagg		1890
ttcaaaagta aaagcagtgg	ccctgctttg gggccaaga	ataggagtga tgggtgaagg		1950
gacctaaagt ggccaatagc	cctctgcccc agacatggga	tgtggatcct tgaggtttct		2010
ggtgaaatct gcacatctgt	gtttttatat ctgttcccta	ccctgtaatc cctaccagct		2070

gcacttggttc tgtgggtttg gtctcttggt taattgcaca caagtaatac tactggggtaa 2130  
ccagaatcag gtgtgaatgt gttgagattt tttactgttt tgcattgatag gaaaattgag 2190  
aaagaatacgc tataaaagat agagaggcat aacatcaatg cagagttgga agttggctcc 2250  
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accattctt tcactttaag aaaaaacaaa taattgttgc agaggtctct gtattttgca 2970  
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<222> (158)..(1333)

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gaagttccgg ggcctttgct gtgtgggata aacagta atg gcg gag gct gca act 175  
Met Ala Glu Ala Ala Thr  
1  
ccc gga aca aca gcc aca aca tca gga gca gga gcg gca gcg gcg acg 223  
Pro Gly Thr Thr Ala Thr Thr Ser Gly Ala Gly Ala Ala Ala Ala Thr  
7 12 17 22

gcg gca gca gcc tcc ccc acc ccg atc ccc aca gtc acc gcc ccg tcc	271
Ala Ala Ala Ala Ser Pro Thr Pro Ile Pro Thr Val Thr Ala Pro Ser	
23 28 33 38	
ctg ggg gcg ggc gga ggg ggc ggc ggc agc gac ggc agc ggc ggc ggc	319
Leu Gly Ala Gly Gly Gly Gly Gly Gly Ser Asp Gly Ser Gly Gly Gly	
39 44 49 54	
tgg act aaa cag gtc acc tgc agg tat ttt atg cat ggg gtt tgt aag	367
Trp Thr Lys Gln Val Thr Cys Arg Tyr Phe Met His Gly Val Cys Lys	
55 60 65 70	
gaa gga gac aac tgt cgc tac tcg cat gac ctc tct gac agt ccg tat	415
Glu Gly Asp Asn Cys Arg Tyr Ser His Asp Leu Ser Asp Ser Pro Tyr	
71 76 81 86	
agt gta gtg tgc aag tat ttt cag cga ggg tac tgt att tat gga gac	463
Ser Val Val Cys Lys Tyr Phe Gln Arg Gly Tyr Cys Ile Tyr Gly Asp	
87 92 97 102	
cgc tgc aga tat gaa cat agc aaa cca ttg aaa cag gaa gaa gca act	511
Arg Cys Arg Tyr Glu His Ser Lys Pro Leu Lys Gln Glu Glu Ala Thr	
103 108 113 118	
gct aca gag cta act aca aag tca tcc ctt gct gct tcc tca agt ctc	559
Ala Thr Glu Leu Thr Thr Lys Ser Ser Leu Ala Ala Ser Ser Ser Leu	
119 124 129 134	
tca tcg ata gtt gga cca ctt gtt gaa atg aat aca ggc gaa gct gag	607
Ser Ser Ile Val Gly Pro Leu Val Glu Met Asn Thr Gly Glu Ala Glu	
135 140 145 150	
tca aga aat tca aac ttt gca act gta gga gca ggt tca gag gac tgg	655
Ser Arg Asn Ser Asn Phe Ala Thr Val Gly Ala Gly Ser Glu Asp Trp	
151 156 161 166	
gtg aat gct att gag ttt gtt cct ggg caa ccc tac tgt ggc cgt act	703
Val Asn Ala Ile Glu Phe Val Pro Gly Gln Pro Tyr Cys Gly Arg Thr	
167 172 177 182	
gcg cct tcc tgc act gaa gca ccc ctg cag ggc tca gtg acc aag gaa	751
Ala Pro Ser Cys Thr Glu Ala Pro Leu Gln Gly Ser Val Thr Lys Glu	
183 188 193 198	
gaa tca gag aaa gag caa acc gcc gtg gag aca aag aag cag ctg tgc	799
Glu Ser Glu Lys Glu Gln Thr Ala Val Glu Thr Lys Lys Gln Leu Cys	
199 204 209 214	
ccc tat gct gca gtg gga gag tgc cga tac ggg gag aac tgt gtg tat	847
Pro Tyr Ala Ala Val Gly Glu Cys Arg Tyr Gly Glu Asn Cys Val Tyr	
215 220 225 230	
ctc cac gga gat tct tgt gac atg tgt ggg ctg cag ctc ctg cat cca	895
Leu His Gly Asp Ser Cys Asp Met Cys Gly Leu Gln Leu Leu His Pro	
231 236 241 246	

atg gat gct gcc cag aga tcg cag cat atc aaa tcg tgc att gag gcc	943
Met Asp Ala Ala Gln Arg Ser Gln His Ile Lys Ser Cys Ile Glu Ala	
247 252 257 262	
cat gag aag gac atg gag ctc tca ttt gcc gtg cag cgc agc aag gac	991
His Glu Lys Asp Met Glu Leu Ser Phe Ala Val Gln Arg Ser Lys Asp	
263 268 273 278	
atg gtg tgt ggg atc tgc atg gag gtg gtc tat gag aaa gcc aac ccc	1039
Met Val Cys Gly Ile Cys Met Glu Val Val Tyr Glu Lys Ala Asn Pro	
279 284 289 294	
agt gag cgc cgc ttc ggg atc ctc tcc aac tgc aac cac acc tac tgt	1087
Ser Glu Arg Arg Phe Gly Ile Leu Ser Asn Cys Asn His Thr Tyr Cys	
295 300 305 310	
ctc aag tgc att tgc acg tgg agg agt gct aag caa ttt gag agc aag	1135
Leu Lys Cys Ile Cys Thr Trp Arg Ser Ala Lys Gln Phe Glu Ser Lys	
311 316 321 326	
atc ata aag tcc tgc cca gaa tgc cag atc aca tct aac tta gtc att	1183
Ile Ile Lys Ser Cys Pro Glu Cys Gln Ile Thr Ser Asn Leu Val Ile	
327 332 337 342	
cca agt gag tac tgg gtt gag gag aaa gaa gag aag cag aaa ctc gtt	1231
Pro Ser Glu Tyr Trp Val Glu Glu Lys Glu Glu Lys Gln Lys Leu Val	
343 348 353 358	
cag aaa tac aaa gag tca atg agc atc aag gcg tgc acg tat ttt gat	1279
Gln Lys Tyr Lys Glu Ser Met Ser Ile Lys Ala Cys Thr Tyr Phe Asp	
359 364 369 374	
gaa gga cat ggg agc tgc cca ttt gga ggg aac tgc ttt tac aag cat	1327
Glu Gly His Gly Ser Cys Pro Phe Gly Gly Asn Cys Phe Tyr Lys His	
375 380 385 390	
gcg taa agaggaggag agaggagcca cgagagctaaa accgctcgtg ccgaattctt	1383
Ala *	
391	
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<212> DNA
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<222> (55) .. (942)
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 2 7 12 17

tca gtt aca cat cac gaa gtc aaa tgc cag ggg aaa cca tta gcc gga 153  
 Ser Val Thr His His Glu Val Lys Cys Gln Gly Lys Pro Leu Ala Gly  
 18 23 28 33

atc tac agg aaa cga gaa gag aaa aga aat gct ggg aac gca gta cgg 201  
 Ile Tyr Arg Lys Arg Glu Glu Lys Arg Asn Ala Gly Asn Ala Val Arg  
 34 39 44 49

agc gcc atg aag tcc gag gaa cag aag atc aaa gac gcc agg aaa ggt 249  
 Ser Ala Met Lys Ser Glu Glu Gln Lys Ile Lys Asp Ala Arg Lys Gly  
 50 55 60 65

ccc ctg gta cct ttt cca aac caa aaa tct gaa gca gca gaa cct cca 297  
 Pro Leu Val Pro Phe Pro Asn Gln Lys Ser Glu Ala Ala Glu Pro Pro  
 66 71 76 81

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 Lys Thr Pro Pro Ser Ser Cys Asp Ser Thr Asn Ala Ala Ile Ala Lys  
 82 87 92 97

caa gcc ctg aaa aag ccc atc aag ggc aaa cag gcc ccc cga aaa aaa 393  
 Gln Ala Leu Lys Lys Pro Ile Lys Gly Lys Gln Ala Pro Arg Lys Lys  
 98 103 108 113

gct caa gga aaa acg caa cag aat cgc aaa ctt acg gat ttc tac cct 441  
 Ala Gln Gly Lys Thr Gln Gln Asn Arg Lys Leu Thr Asp Phe Tyr Pro  
 114 119 124 129

gtc cga agg agc tcc agg aag agc aaa gcc gag ctg cag tct gaa gaa 489  
 Val Arg Arg Ser Ser Arg Lys Ser Lys Ala Glu Leu Gln Ser Glu Glu  
 130 135 140 145

agg aaa aga ata gat gaa ttg att gaa agt ggg aag gaa gaa gga atg 537  
 Arg Lys Arg Ile Asp Glu Leu Ile Glu Ser Gly Lys Glu Glu Gly Met  
 146 151 156 161

aag att gac ctc atc gat ggc aaa ggc agg ggt gtg att gcc acc aag 585  
 Lys Ile Asp Leu Ile Asp Gly Lys Gly Arg Gly Val Ile Ala Thr Lys  
 162 167 172 177

cag ttc tcc cgg ggt gac ttt gtg gtg gaa tac cac ggg gac ctc atc 633  
 Gln Phe Ser Arg Gly Asp Phe Val Val Glu Tyr His Gly Asp Leu Ile  
 178 183 188 193

gag atc acc gac gcc aag aaa cgg gag gct ctg tac gca cag gac cct 681  
 Glu Ile Thr Asp Ala Lys Lys Arg Glu Ala Leu Tyr Ala Gln Asp Pro  
 194 199 204 209

tcc acg ggc tgc tac atg tac tat ttt cag tat ctg agc aaa acc tac 729  
 Ser Thr Gly Cys Tyr Met Tyr Tyr Phe Gln Tyr Leu Ser Lys Thr Tyr  
 210 215 220 225